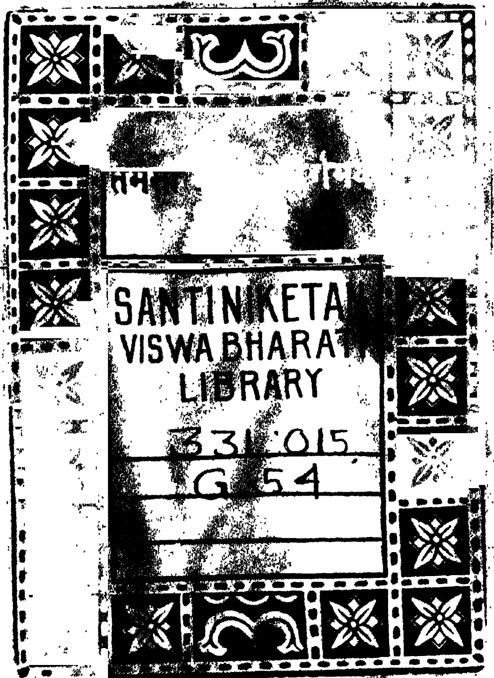

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LECTURES FOR 1919

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LOUIS CLARK VANUXEM FOUNDATION

HUMAN EFFICIENCY

AND

LEVELS OF INTELLIGENCE

BY

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DIRECTOR OF THE BUREAU OF JUVENILE
RESEARCH OF OHIO

LECTURES DELIVERED AT PRINCETON UNIVERSITY
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PREFACE

Without some word of explanation the reader might judge that the author of this book thought that intelligence was the sole determiner of human conduct. Such a view is of course inconsistent with the most obvious facts.

It happens however, that in the solution of this problem of human efficiency, we are just at present better equipped to evaluate the part intelligence plays, than any other of the psychological factors. It therefore seems worth while to solve our problem in terms of intelligence as though it were the only variable. The other unknown quantities may be considered when the part they play is better understood.

Let us solve our equation for x now and leave y and z for later consideration when we shall know as much about emotion and temperament as we now know about intelligence.

If mental level plays anything like the rôle it seems to, and if in each human being it is the fixed quantity that some believe it is, then it is no

useless speculation that tries to see what would happen if society were organized so as to recognize and make use of the doctrine of mental levels.

Moreover if the views set forth in these lectures are in the main sound then it is quite possible to restate practically all of our social problems in terms of mental level.

For example, what could be done with labor and wages? Suppose we say men should be paid first according to their intelligence; and second according to their labor: e.g., "D" men are worth and should receive "D" wages; C men C wages (which are higher), etc. If a certain job requires D intelligence, D men should be employed at D wages. If there are not enough D men, C men must be employed at C wages. And it may be relied upon that they will be worth the difference because of their greater intelligence.

If, of two jobs each requiring D intelligence, one is more agreeable than the other and hence draws all the D men, the conditions must be evened up as far as possible by changing hours, etc., and then by increasing the pay for the less desirable job. A little experimenting would equalize the two jobs so that all would be satisfied. Doubtless other adjustments would be found necessary. But the great advantage of

having every man doing work on his own mental level would prove fundamental.

Testing intelligence is no longer an experiment or of doubted value. It is fast becoming an exact science.

The facts revealed by the army tests cannot be ignored. Greater efficiency, we are always working for. Can these new facts be used to increase our efficiency? No question! We only await the Human Engineer who will undertake the work.

It is hoped that the consideration of the topics of these lectures will help prepare the way for greater social efficiency.

INTRODUCTION

The topic of mental levels or "levels of intelligence" has been chosen for these lectures because while the subject is not altogether new it seems that there are phases of it that have not been dwelt upon but which enable us to look at some of the present day problems from a new angle, and suggest solutions different from any usually discussed.

Stated in its boldest form our thesis is that the chief determiner of human conduct is a unitary mental process which we call intelligence: that this process is conditioned by a nervous mechanism that is inborn: that the degree of efficiency to be attained by that nervous mechanism and the consequent grade of intelligence or mental level for each individual is determined by the kind of chromosomes that come together with the union of the germ cells: that it is but little affected by any later influence except such serious accidents as may destroy part of the mechanism.

As a consequence any attempt at social adjustment which fails to take into account the determining character of the intelligence and its unalterable grade in each individual is illogical and inefficient.

profit in average measure from the instruction given in the ordinary school. But how the examination of each child should be made the Commission felt under no obligation to decide. To one member of that Commission, however, it seemed extremely useful to furnish a guide for future Commission examinations. That member was Alfred Binet. He felt strongly the need of a scientific method of determining what children needed this special treatment. He says, " To be a member of a special class can never be a mark of distinction, and such as do not merit it must be spared the record." With this feeling Binet set to work upon the problem devoting the energy of his marvelous intellect and a large part of his time for approximately seven years to the developing and perfecting of a measuring scale for intelligence.

In 1906 the Vineland Laboratory was opened for the psychological study of feeble-mindedness. Those who are especially interested in the origin and evolution of ideas may be interested to ponder over the problem of how there should originate in two nations widely separated, different in language, and without collusion or suggestion from one to the other, the same idea though motivated by very different purposes. The French-

man having the very definite and practical objective of determining who were the children who needed special education. The American having a vague conception that these same defectives might "unconsciously whisper to us syllable by syllable the secret of the soul's growth, and, thus, the most ignorant teach us most."

It was not long, of course, until these two streams of independent origin flowed together and out of them has grown the theory of mental levels.

It is often easy after a theory has been scientifically demonstrated to discover that there is nothing new about it. We have accepted and used it for long only under a different name, or without realizing its far-reaching significance. It is certainly not new to declare that a two-year old child is at a higher mental level than a one-year old. A child of ten is of higher intellectual development than one of six; and so far, it is true there is nothing new in the theory of mental levels. Throughout childhood the human being rises to an ever higher level of intelligence, but beyond this we had not gone, perhaps never would have gone had not the genius of a Binet given us the means of extending the principle. As so often happens in human affairs it is the part

that is just beyond the obvious that proves to be of the utmost value. When gold was discovered in the Black Hills it was not long until the visible supply was exhausted, and at that time it was little realized that the rock, which to the placer miner was of no use, would one day furnish the material for the most profitable mining operation in the world.

It is a matter of every-day observation, as already stated, that children as they grow rise to a higher and higher level of intelligence. But two facts were unappreciated and even yet are so little recognized as to make the whole matter "a theory" in the minds of most. These two facts are: First that the intellectual development is largely independent of what we call learning or knowledge; and second that not all develop to the highest level, or even near to it; many stop at some one of the lower levels of childhood. To produce the evidence for these facts and to draw some of the far-reaching conclusions therefrom is now our task.

That we may approach the problem with unbiased minds it will be well to first remove some of the obstacles. First let us state the theory more succinctly than we have yet done. The theory of mental levels holds that every human

being comes into the world with a potentiality for mental development that will carry him just so far and that barring those accidents that may stop a person from reaching the development which would have been normal to him, nothing can, to any great extent, effect the mental level to which he will finally attain. Why is this view hard to accept?

Probably the first and most important reason is that we have generally confused intelligence with knowledge. Having no way to evaluate either one we have been lost in the intricacies and confusion results. At this point I should like to define each one but unfortunately we are unable to. We do not know what intelligence is and it is doubtful if we even know what knowledge is. This however need not frighten us since man works with and makes use of many things which he cannot define. For example electricity, which we can measure, control and use, but the exact nature of which has never yet been ascertained. We may point out that intelligence is an inherited force while knowledge is wholly acquired. Moreover they are not to a large extent inter-dependent. It is true that one can not acquire a high degree of knowledge without having some intelligence and the highly intelligent per-

son certainly acquires knowledge because it is of great use, but, a person may have knowledge that is out of proportion to his intelligence and vice versa.

The last statement especially forces us to make at least an attempt to define our terms. What do we mean by intelligence and what do we mean by knowledge? We have said that the one is inborn, the other acquired. Intelligence is the potentiality of the machine. Knowledge is the material upon which it works. Knowledge is the raw material. Intelligence determines what we do with it. The effectiveness of a machine (what it can do), depends upon its structure and its functioning. Likewise, intelligence is dependent upon the structure of the brain cells which condition given mental processes, and second, upon the functioning of those cells.

A hand printing press is a machine of very simple structure and has a simple function of spreading ink upon paper according to a prearranged plan. Its structure may be of the simplest, merely a square block of metal, wood or rubber cut into the desired form upon which the ink is spread and then the block placed against the paper. Twenty-six such blocks used individually in the prescribed order is sufficient to put

upon the paper any message in the English language and by repetitions of the process one can make as many copies as one likes. This would be an example of very simple structure and a very simple functioning. We may elaborate the structure of this machine so that it will hold together the different blocks in the prescribed order so that they can all be impressed at once upon the paper. We have thus elaborated the structure slightly and extended its function and thus attained to a higher level of printing.

A higher level is reached when we elaborate the structure by the addition of guides, wheels and levers so put together and arranged that it is only necessary to place the paper of the right size in a particular position and the copies are produced as rapidly as the paper can be placed.

A still higher level of structure and functioning is attained when the machine is so elaborated that it is only necessary to place a pile or a roll of paper in a given position and the machine picks up a piece of paper, places it under the type, prints it, puts it out of the way and repeats the process. And so by adding new structure to our machine in such a way that new functions are possible, we may finally arrive at a machine that needs only to have a supply of the raw material

in the shape, for instance, of sheets of paper cut in a definite shape, when it will pick up the paper a sheet at a time, print it, spread glue on certain prescribed edges of the sheet, fold over and press together some of those edges until we have an envelope which continuing through the machine, the gum on the flap is dried and then the flap is folded over and the completed envelopes are counted, pushed out, grouped in packages of twenty-five, a band placed around the bundle and dropped into a box. The structure of such a machine is exceedingly complicated and the functioning is so surprising that it is a common remark that the machine is "almost intelligent."

We, thus, have a very high level of mechanical efficiency. This is comparable to intelligence. This machine may exercise its complete function upon paper and a printers ink made from lamp black and oil. These are the raw materials comparable to knowledge. But the same machine is capable of using other raw materials. It may use innumerable kinds of ink made from widely different substances. It may print upon paper of many different kinds, upon cloth, wood, metal and numerous other substances. It may make envelopes of different sizes and shapes with no change of its structure and only a slight change

of functioning. It may count them out in tens or fifties or any other numbers and thus its usefulness is enormously increased, but it will be noticed it is the same machine, the same structure and functions. We have merely increased the range of its raw materials. Knowledge is to intelligence what the raw material is to the machine. This is, to be sure, a crude and inadequate illustration of the human machine and yet the analogy is sufficiently close and accurate to help us to comprehend the relation of intelligence to knowledge, which is fundamental to an appreciation of the doctrine of mental levels.

It may be said that one may have considerable knowledge with little intelligence. The simple hand press, our lowest level of mechanical structure in the printing press, might nevertheless be supplied with quantities of all kinds of ink and material to be printed; but it could never use all of that material because the process is too slow and because the structure would not permit of its being used upon all kind of substances. It could never make an envelope because its structure is wholly inadequate. Low grade intelligence cannot use much knowledge. In our illustration it is always possible to distinguish the machine or any part of it from the raw material upon which it

works. In considering the work of the human being this is not the case, hence, the confusion to which we have referred, between intelligence and knowledge.

Many a person is estimated as of high intelligence who in reality has only a somewhat unusual supply of knowledge. The extreme of this is familiar in the man who, as it is commonly expressed, "is a walking encyclopedia" but who makes almost no use of his knowledge for the usually unappreciated reason that he has not the natural intelligence necessary. A man well known to the writer has an intimate knowledge of the facts of history sufficient to have made him a statesman; but lacking the intelligence to use his valuable acquisition in this line he spent a perfectly colorless life unknown outside of his own township and unappreciated even there.

The second important reason why the theory of mental levels is hard to accept is to be found in the fact that while we know that children generally increase in intelligence from birth to maturity we have never appreciated the exceptions. Let us consider the accompanying diagram.

The vertical lines with their increasing height may represent the increase of intelligence as the years increase. This we have observed and ac-

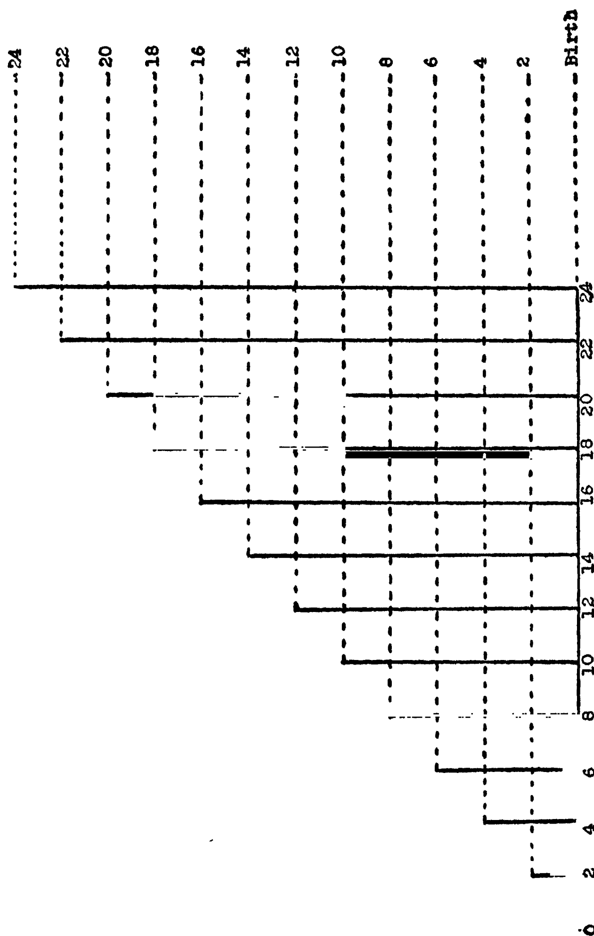


FIGURE 1.—Diagram to illustrate arrest of mental development. Vertical lines represent the increase of intelligence with increasing age—not the amount, simply the fact. Horizontal dotted lines illustrate the fact that *at any age* development may cease and the individual remain on that level the rest of his life. Two year periods are used merely for convenience.

cepted. The horizontal lines will represent what we have not appreciated, viz., that some of the people who attain to the mental level of six, for instance, stop there and as the years go by will always be found on that level. We have, it is true, begun to appreciate the fact of arrested mental development. What we have not begun to appreciate is the proportion of human beings who have stopped at the ages of ten, twelve, fourteen years. If we seek for the reason for this oversight it is to be found partly in the confusion of intelligence with knowledge and partly also, in the fact that we confuse mental development with physical development. Because the boy of ten whose mental development may have ceased at that point, continues to develop physically our estimate of him follows the physical development which is so obvious; and we fail to appreciate the mental side which is obscure. It is a notorious fact that men judges and men physicians refuse to admit a girl is feeble-minded if she is pretty.

As long as we had no scientific method of determining the mental level it was but natural that we should fail to appreciate it. What then are the methods of interpreting the mental level and what are the results of using those methods? I shall not weary you with the details of the tests

used or the systems of tests, but, rather attempt to emphasize some of the principles of mental testing that have been too little appreciated and are still too often ignored. The assumptions underlying the determination of mental level are:

First, there is an orderly development of intelligence from birth to an upper limit as yet not accurately determined.

Second, it is possible to observe and measure this development independent of the acquired knowledge. Moreover a test of a child's knowledge has only an indirect value as when a person who has not succeeded in acquiring knowledge, we may explain his failure on the basis of lack of intelligence. But that is an indirect argument which is only resorted to in borderline cases or for purposes of confirmation.

The first assumption does not need discussion so far as its main theme is concerned. It has been objected that while there is an orderly development that order is peculiar to each individual and that the individual variations are so great that it is impossible to have one standard. It has been maintained rather strongly that children do not develop equally on all sides, but on the contrary very unevenly; that one child is strong where another is weak. There is no denying that the facts

upon which this statement is made are true. What has not been appreciated is the fact that they have no bearing upon the problem of measuring the intelligence level. The differences and peculiarities that are a matter of common observation are *the manifestations* of intelligence and not the intelligence itself. To go back to our analogy of the printing press, one printer may use black ink, another red or green. One may make a specialty of printing on silk, another on parchment, one may show one kind of product and another another, but it is always the same machine.

Our second assumption needs more careful consideration. It is rather popular to deny in toto that intelligence can be measured. This view has persisted apparently for two main reasons; first, the confusion with knowledge with the added consideration that knowledge is more in evidence; and second, from a misconception of the nature of mind. This misconception is natural enough, because the psychologist has been in the habit of discussing the various phases and manifestations of mind as though they were separate entities, a process justifiable for purposes of study but exceedingly misleading when it comes to the application to practical problems. Even if the psy-

chologist's description of attention, memory, perception, reasoning, will, etc., is correct, and even if we could measure the strength of these in a particular child, it would be utterly unsafe and irrational to conclude that we could predict what the result would be when some or all of these processes are combined into that function which we call intelligence.

Even in the material world it is often unsafe to attempt to predict what will be the properties of a synthetic product. For example, the properties of steel are well known, also the properties of vanadium, but no one would have dared predict that the addition of seventeen hundredths of one percent of vanadium to a quantity of steel would produce a product that differs from both to the extent that vanadium steel differs from either one.

In the matter of tests of intelligence this error has been made repeatedly. At one time there was a strong demand for a statement of what each question tested; in the Binet Measuring Scale of Intelligence for instance, it was asked which were tests of attention, which of memory or perception or reasoning. It was very difficult to convince students that this was an irrational procedure; especially difficult since it is true that

different types of questions do call for a grade of intelligence in which now memory predominates, now reasoning and now something else. But it is important to remember at all times that we are testing intelligence. To revert to our figure of the printing press it is as though one took it to pieces and laid out the different parts and then concluded that he could judge of the efficiency of the machine by the perfection of those parts. It is obvious that the real question is,—how do they work together?

No machinist, however skilled could, by looking at the parts thus spread out, predict whether the machine would work or not—still less tell what it would do. If this is true, even of the most complicated machine, how much more true of anything so complicated as the human mind.

If it is granted then that intelligence develops and that it can be measured, our next question is,—how is it to be done? The answer is easy, its application difficult. It is only necessary to devise a series of tasks that involve the application of the varying degrees of intelligence; arrange these tasks in order of difficulty and then by setting the tasks to a child ascertain how far along the scale he has gone. Binet arranged his tasks or test questions according to age. This is

simple and practicable and although other types of scales have been suggested it seems probable that nothing can take the place of an age grade rating. This means that we ascertain what tasks or test questions the children of the various chronological ages can do. We find, for instance, that children of five years can answer certain questions which children of four years cannot answer, and the five year olds in turn, cannot answer the questions that belong to six year intelligence. Thus we have standards for each age, and we can compare any person old or young with these standards. Many have thought that because the original purpose of the tests was to discover defectives, they were not valid for normal children. Such persons have failed to understand the real nature of the tests.

Others have thought that while they are useful for children they are not valid for adults. They are surely reliable for feeble-minded adults and as for normal adults the original Binet tests had norms only up to twelve years. The Stanford Revision however, has extended this to "superior adult."

It must be borne in mind that the task set must be such as calls for native intelligence and not knowledge. Skepticism in regard to the validity

of tests is the result largely of a confusion of intelligence with knowledge. One constantly hears the objection that such a child has not had an opportunity to learn certain things. If the question is one that depends upon the acquisition of knowledge then it is not a suitable test of intelligence. While it is probable that no measuring scale so far devised entirely gets away from more or less influence of knowledge and education, yet the questions are so arranged that on the whole it has very little influence. The truth of this is proved by the results.

Let us now consider the results obtained in the use of mental tests, for after all the truth of the theory must be determined by the validity of the results. I shall not bother you with statistics or detailed statements of results in special cases. Suffice it to say that the results have surpassed all expectations. The mental level of a person as determined by any standardized measuring scale of intelligence is found to agree remarkably with his mentality as it is judged by his adaptation to his environment; and in practically all cases where the mental level of abnormal persons is determined it is accepted as the adequate explanation of conduct previously unintelligible. Not only that but the method has proved to be so

elastic that it is but little affected by what we may call rough usage.

It was long contended, for example, that the scale would be of no value except in the hands of those who had received long and extensive training. It was thought that the so-called personal equation of the examiner would often invalidate the test. It was thought that the person examined must be kept under most rigid laboratory conditions. It was thought that children would communicate to each other the results and thus render the procedure invalid. These and many other difficulties were anticipated. As a matter of experience practically none of these has proved serious.

It is true that statistical studies of large groups have shown variations in personal equation, in the effect of different procedures, and so on. But so far as any one individual child is concerned his mental level is determined with an error so slight as to be negligible. These statements must not be confused with the question of diagnosis which is an entirely different matter. We may for example determine that a twelve year old child has a ten year mental level. Whether such child is to be considered a case of mental arrest, feeble-minded, is an entirely different question which

depends upon many other factors. Here as elsewhere, diagnosis is difficult and requires a great deal of training and experience in all borderline cases. If a twelve year old child tested four there would be no difficulty in either case, that is, of determining the mental level or of deciding upon feeble-mindedness.

If in the past there has been any doubt of the truth of these statements, there can be no question now with the experience of the army tests in mind. Over one million, seven hundred thousand men in the army have been tested by these methods, their mental level determined and recorded. The results were so uniformly accurate and in agreement with the experience of the officers, that they were quickly accepted and used as a basis for procedure. Officers were appointed from the men who were found by the tests to be most intelligent. Those who were found to be least intelligent, proved also to be dull as determined by the daily routine and were recognized as of too low mentality to be profitable to send overseas. These results have been published and we shall not reproduce them. We may, however, as a basis for our later discussion draw some very significant inferences from the results so far published.

The significance of these results will be appreciated when we consider that one million and seven hundred thousand drafted men in the army may be accepted as a fair sample of the population of the United States. Whatever we may determine in regard to that group of men we shall probably find applicable to the country as a whole. It is thus probable that we can find in these results, suggestions and conclusions of profound importance as bearing upon our social problems and social well being. It will be recalled that the Army Tests were, for the most part, group tests; that is, the men were examined in groups of fifty to three hundred. Moreover, the scale used was essentially a Point Scale, that is to say in what is known as the Alpha test were two hundred and twelve points, possibly obtainable. The accompanying chart is made from the figures given out by the Surgeon General.

We quote from the official report:

"Explanation of Letter Ratings. The rating a man earns furnishes a fairly reliable index of his ability to learn, to think quickly and accurately, to analyze a situation, to maintain a state of mental alertness, and to comprehend and follow instructions. The score is little influenced by schooling. Some of the highest records have been

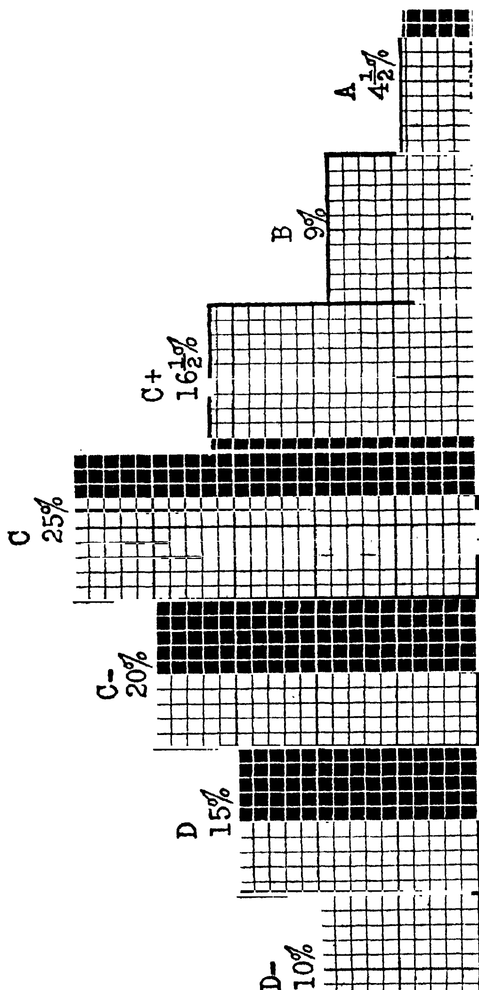


FIGURE 2.—Diagram showing the mental levels of the United States Army as authorized and published under the authority of the Surgeon General of the Army. For explanation see text.

made by men who had not completed the eighth grade. The meaning of the letter ratings is as follows:

"A. Very Superior Intelligence. This grade is ordinarily earned by only four or five per cent of a draft quota. The "A" group is composed of men of marked intellectuality. "A" men are of high officer type when they are also endowed with leadership and other necessary qualities.

"B. Superior Intelligence. "B" intelligence is superior, but less exceptional than that represented by "A." The rating "B" is obtained by eight to ten soldiers out of a hundred. The group contains many men of the commissioned officer type and a large amount of non-commissioned officer material.

"C plus. High Average Intelligence. This group includes about fifteen to eighteen per cent of all soldiers and contains a large amount of non-commissioned officer material with occasionally a man whose leadership and power to command fit him for commissioned rank.

"C. Average Intelligence. Includes about twenty-five per cent of soldiers. Excellent private type with a certain amount of fair non-commissioned officer material.

"C minus. Low Average Intelligence. In-

cludes about twenty per cent. While below average in intelligence, "C—" men are usually good privates and satisfactory in work of routine nature.

"D. Inferior Intelligence. Includes about fifteen per cent of soldiers. "D" men are likely to be fair soldiers, but are usually slow in learning and rarely go above the rank of private. They are short on initiative and so require more than the usual amount of supervision. Many of them are illiterate or foreign.

"D minus and E. Very Inferior Intelligence. This group is divided into two classes (1) "D—" men, who are very inferior in intelligence but are considered fit for regular service; and (2) "E" men, those whose mental inferiority justifies their recommendation for Development Battalion, special service organization, rejection, or discharge. The majority of "D—" and "E" men are below ten years in "mental age."

"The immense contrast between "A" and "D—" intelligence is shown by the fact that men of "A" intelligence have the ability to make a superior record in college or university, while "D—" men are of such inferior mentality that they are rarely able to go beyond the third or fourth grade of the elementary school, however

long they attend. In fact, most "D—" and "E" men are below the "mental age" of 10 years and at best are on the border-line of mental deficiency. Many of them are of the moron grade of feeble-mindedness. "B" intelligence is capable of making an average record in college, "C plus" intelligence can not do so well, while mentality of the "C" grade is rarely capable of finishing a high school course."

It is possible to make 212 points in the tests, and the number of points for each letter rating are as follows:

D minus, 0 to 14; D, 15-24; C minus, 25-44; C, 45-74; C plus, 75-104; B, 105-134; A, 135-212.

In the nature of the case this group testing can hardly be expected to be as accurate as the individual examination. Nevertheless this army work was repeatedly reviewed and investigated by the general staff and always approved, because it agreed with their experience with the men and the results could be obtained so much more quickly. A Depot Brigade of raw recruits could be tested by the psychologist in an hour or two and the commanding officers be given the results which it would take them six months to learn in the ordinary routine of drills.

In the words of the Army Report already

quoted, it has been thoroughly demonstrated that the intelligence ratings are useful in indicating a man's probable value to the service. We could give many evidences of this if time permitted. For example, eighty-two percent of the officers of the army are found in the "A" and "B" groups. In a unit about to go overseas three hundred and six men were designated by their commanding officers as unfit for overseas service. These were referred for psychological examination with the result that ninety percent were found to be mentally ten years or lower.

In other words with this army experience it is no longer possible for any one to deny the validity of mental tests, even in case of group testing; and when it comes to an individual examination by a trained psychologist, it cannot be doubted that the mental level of the individual is determined with marvelous exactness.

The significance of all this for human progress and efficiency can hardly be appreciated at once. Whether we are thinking of children or adults it enables us to know a very fundamental fact about the human material. The importance of this in building up the cooperative society such as every community aims to be, is very great. The mechanical engineer could never build bridges or

houses if he did not know accurately the strength of materials, how much of a load each will support. Of how infinitely greater importance is it then when we seek to build up a social structure that we should know the strength of our materials. Until now we have had no means of determining this except a few data on the physical side such as a man's strength, ability to bear burdens, and so forth, and on the mental side a rough estimate born of more or less experience with him. How inadequate all this has been is indicated by the large proportion of failures that are continually met with in society. This we shall discuss somewhat in the next chapter.

In this connection the chart showing the results of the army testing is of profound significance. The first thing is the relatively low mentality of the great middle group, the "C" group. The army has not yet given out the age grade ratings for these different groups with the exception of the "D—" which they say is ten years and under, but it is possible to make a fairly accurate estimate by mathematical means. The accuracy of this estimate is confirmed by the statements that are made in the official report. For example, they tell us that the "C" group are rarely capable of finishing high school; even "C plus"

men are rarely equal to complicated paper work by which is meant making the necessary reports in connection with the army work.

A score of from 10- 19	points	is	equivalent	to a	mental	age of	10
20- 34	"	"	"	"	"	"	11
35- 44	"	"	"	"	"	"	12
45- 59	"	"	"	"	"	"	13
60- 74	"	"	"	"	"	"	14
75- 89	"	"	"	"	"	"	15
90-114	"	"	"	"	"	"	16
115-134	"	"	"	"	"	"	17
135-159	"	"	"	"	"	"	18
160-212	"	"	"	"	"	"	19

From these figures and those given on page 27 it will be seen that the D — group would have a mental age of 10 or less; the D group would be made up of some 10 year and some 11 year mentality; C —, includes the rest of the 11 year and all of the 12 year. C is 13 and 14 year: C +, holds the 15 year and half of the 16: B is the rest of 16 and all of 17: and finally the A group exactly covers the 18 and 19 year mentalities.

These figures are so startling that in spite of the fact that the tests made their way against much opposition and were finally endorsed by the general staff, one is inclined to think the questions must have been too hard.

This is not the place to reproduce the tests but a brief abstract will satisfy the reader that

the 10 per cent who fell in the D — group must have been at least as low in intelligence as ten year old boys.

By reference to the above figures it will be seen that only 15 points were required to get into the D group and only 25 to get into the C — group.

Here are 15 test questions taken from the army examination:

1. How many are 30 men and 7 men?

2. Are cats useful animals because they catch mice, or because they are gentle, or because they are afraid of dogs?

3. Is leather used for shoes because it is produced in all countries, or because it wears well, or because it is an animal product?

4. Do these two words mean the same or opposite: wet—dry?

5. Do these two words mean the same or opposite: in—out?

6. Do these two words mean the same or opposite: hill—valley?

7. Re-arrange these groups of words into a sentence and tell whether it is a true or false statement. *lions strong are.*

8. *houses people in live.*

9. *days there in are week eight a.*

10. *leg flies one have only.*

11. Write the next two numbers in this series: 3, 4, 5, 6, 7, 8.

12. In this series: 15, 20, 25, 30, 35.

13. In this series: 8, 7, 6, 5, 4, 3.

14. From the four words in heavy type select one that is related to the third word in italics as the second is to the first; *gun—shoots :: knife—* **run cuts hat bird.**

15. *ear—hear :: eye—* **table hand see play.**

Man examined was allowed fifty minutes for the task. Each type of question was fully explained; and what he was to do was illustrated before the test began. No man who answered correctly these fifteen questions or any similar fifteen, was rated as low as group D —.

This shows us at a glance the enormous proportion of the human race that is of moderate intelligence, a fact not usually appreciated by the people of higher intelligence; to which group all readers of this book must modestly admit they belong, for the simple reason that a "C" intelligence or less could not be interested in these topics.

Moreover the army report tells us that the "B" group is of average college intelligence. Does not this make it clear why it is so difficult to carry for-

to men of intelligence but cannot be expected to appeal to the masses whose intelligence is lower than that of the "C plus" group? There seems to be much food for thought here and we shall discuss some of these topics in the later lectures.

EFFICIENCY

The facts and considerations set forth in the previous chapter enable us to restate in a new way the condition in which we find ourselves in relation to the problem of social efficiency.

Our army abroad had a well earned reputation for efficiency and no small part of the result may be attributed to the fact that the lowest 10 per cent in intelligence were not sent overseas and that 83 per cent of the officers came from the "A" and "B" classes—superior and very superior intelligence.

There can be no question that if a similar condition prevailed in our social groups a corresponding gain in efficiency would result. As a matter of fact, not only are the "lowest 10 per cent" with us, but they are unrecognized and hence are often mistaken for intelligent people and placed in responsible positions.

It is a maxim in engineering that a bridge is not stronger than its weakest part. The same is largely true of society. It must be understood however, that weakness is not determined by the size of the part but by the relation the size or

strength of the part bears to the work it has to do. The big steel girder may be the weak part while the small bolt may be capable of bearing all the strain that is required of it.

Similarly, the efficiency of the human group is not so much a question of the absolute numbers of persons of high and low intelligence as it is whether each grade of intelligence is assigned a part, in the whole organization, that is within its capacity. An intelligent man who undertakes work requiring even higher intelligence, may be as inefficient as the imbecile who undertakes work that only a moron can do.

Let us again look at our chart showing the distribution of the people according to mentality. I suppose no one will deny that this distribution based on the examination of a million, seven hundred thousand drafted men, may be applied to the entire population of the United States,—not to take any larger group. Surely we cannot say that the drafted army was either more or less intelligent than those who make up the rest of the population. They must certainly be a fair sample of the whole.

Let us see what these percentages would give us. On the basis of a hundred million population, we have four and one-half million people of "A"

intelligence, nine millions of "B" grade, sixteen and one-half of "C plus," twenty-five of "C," twenty of "C minus," fifteen of "D" and ten million of "D—" and "E" mentality.

These figures are beyond human comprehension and hence are of no use except for comparison and illustration.

From the standpoint of efficiency the fundamental question is this: Does the work of the country require these numbers of people of the various grades? Is there for example, just work enough requiring thirteen-fourteen year intelligence to keep twenty-five million people busy? Is there enough work requiring "D" intelligence to keep fifteen million people busy?

Of course we have no answer. No attempt has ever been made to ascertain what grade of intelligence is required for any of the multitude of occupations. That is the next step, that follows logically from the discovery of mental levels. Moreover, it is not a difficult task, once we set ourselves about it.

If we assume that the foregoing question is to be answered in the affirmative, we are at once relieved of one tremendous problem. The supply equals the demand at least! We are however, confronted with another question which exposes

a condition not so easy of adjustment. Are all the "C" people doing "C" work, "A" men "A" work, etc? We know they are not.

Manifestly here is an enormous loss of efficiency. Every time a "B" man employs himself doing "C" work society is losing. Every time a "C" man attempts to do "B" work he fails, and again society loses.

There are of course many other factors that determine—and rightly so—what work a man does. Some of these we shall consider later.

An ideally efficient society then would be made up of the right proportion of individuals to do all the different types of work that are to be done and each man doing the work for which he is just capable. How far we are from the ideal may be seen from a consideration of the various types. We have mentioned the case of those who have an intelligence below that required for the task they have undertaken.

The prevalence of this condition is vastly greater than has been appreciated, and is a potent cause of social inefficiency, individual unhappiness, misdemeanors and crime. Well may it be said, "Blessed is that man who has found his work." We may perhaps, pass over the preschool age since no great efficiency is looked for

during that period; however, even here serious errors sometimes occur as for example, when an attempt was made to test the eyesight of a three year old child by the use of what is called the illiteracy eye test card. This card though adapted to illiterates nevertheless involves more intelligence than is possessed by the average three year old child. Needless to say, the examination was a failure but sad to relate, the physician did not know why.

With the commencement of school life, the trouble begins and the number of cases of five year intelligence attempting to do six year (first grade) work, is probably vastly greater than is appreciated. The writer has elsewhere shown (Pedagogical Seminary, June 1911, Volume 18, pages 232-259) how this works out in one school system. For example, in one first grade there were thirty-one with six year mentality (therefore properly placed) but there were also twenty-four with five year mentality and one with four year mentality. These twenty-five cases were undertaking work that was beyond their intelligence. In the fourth grade, were twenty-six of nine year mentality and eight of eight year mentality. Similar conditions were found in all grades.

This condition is still found in the high school and even in college and sometimes in graduate work and finally is all too prevalent in the adult business of life. Many a man attempts to be a physician, a lawyer, a clergyman who has not the requisite intelligence. These professions are strewn with failures besides having vast numbers of people who are practically nonentities in these professions because they have not sufficient intelligence to make their mark. When it comes to mercantile pursuits, many a man has started in business only to fail because his intelligence was not equal to the task that he had assumed. In political life, the situation is notorious. How many are elected to a public office for which they have not the adequate intelligence, being elected on the basis of some other quality which may be pleasing in itself, but has no bearing upon the work they are to do!

Another phase of the situation is of considerable importance and is best seen in the educational group. Often, a child in a certain grade shows the intellectuality capable of doing all the work save in one subject. Here he is beyond his depth. This may be due to one of two causes, either the subject itself is out of place (really requiring more intelligence than the average child

in that grade possesses), or second, because the particular individual on account of some idiosyncrasy manifests less intelligence in relation to that particular subject. A mathematician of large experience and ability once told the writer that as the result of his many years of teaching, he was convinced that a large number of children were spoiled for mathematical work by undertaking it too early. It is a pedagogical question often asked and much discussed, whether a child who is backward in one subject should be required to give intensive study to it, or should that subject be allowed to lapse while he goes on with those topics for which he seems to have capacity. The real solution of the difficulty would seem to be that the amount of intelligence required for the particular work should be ascertained and the amount of intelligence that the individual has should also be ascertained. If the latter is below the former then it is useless to attempt to make up for the lack of intelligence by excessive work, that problem should be laid aside until the child's development reaches the necessary level.

It is proper to ask in connection with this whole matter, how does it happen that so many people undertake work that is beyond them? The reasons are numerous, but it will be neces-

sary to point out only a few. With children, it is very often a matter of parental pride, many parents are anxious that their children should show up a little better than their neighbor's children and consequently they push them on into the higher grades faster than their intelligence develops. This is usually accomplished by use of the memory. School work is so conducted that memory is a large factor and most any child can, by persistent effort (the result of parental driving), memorize enough of the school work to satisfy his teachers, get a requisite mark and so pass on into the higher grades. What has been called social heredity accounts for a great deal of this. The father or mother, or both, have been college people and it is their ambition that all of their children should go through college, regardless of whether the children are of college caliber or not. In the same way, university careers are prescribed and finally, the professions. The ancestors have all been physicians, therefore the child must study medicine. Sometimes it is the question of money; a certain profession or a certain business is supposed to be lucrative so the children must be prepared to earn their living in that work. In many cases, the well known religious enthusiasm of the adolescent is taken ad-

vantage of and the youth decides that he will be a clergyman which decision is heartily and enthusiastically encouraged either by parents or associates without any regard to the question whether the individual has the necessary intelligence or not.

It is not necessary in this place to point out the evil consequences of these mistaken choices. It may be said by way of a caution however, that not all the failures in these various lines are due solely to the lack of intelligence. We shall discuss later some of the other qualities to be taken into consideration, but we would emphasize our thesis that the correct determination of the mental level of the individual would save vast numbers of these failures.

It is natural to raise the question just here as to whether it would not be a serious humiliation for an individual to discover that he has not sufficient intelligence to undertake a given line of work. The reply is first, whatever the momentary humiliation, it can never compare with the humiliation of failure that is sure to come later, or with the unhappiness that is the constant accompaniment of worrying through the years working at a task that is beyond one's ability. The second answer is, that it is only

a question of custom and frequency. For a single individual to be pointed out as not having sufficient intelligence to become a doctor while the rest of his group were supposed to have the requisite intelligence, would be somewhat humiliating; but if the intelligence of each member of the group were determined and all were found to have approximately the same, even though it were below that required for a particular profession would not be humiliating. Moreover, it is not so new and strange as at first appears. Many people today are advised not to undertake this or that profession or business because they have not the requisite qualifications. The application of the facts of mental level is only a more scientific way at getting at the same result.

We may pass now to the next type. This group comprises those who have more intelligence than the work requires. At first sight, one would be inclined to expect that this would be a much smaller group than the other. However statistics of school children, while not yet sufficiently accurate to determine the absolute ratio, nevertheless do not indicate that this is a very small group. The same study referred to above showed that in the first grade, there were thirty-one children of seven year mentality and thirteen of eight year

mentality. It may very probably be safely assumed that some of these had just entered school and would not long remain in the first grade; but in the fourth grade, we have thirty-seven with ten year mentality, two with eleven year mentality and two with twelve year mentality; in the fifth grade, twenty-eight with eleven year mentality and fourteen with twelve year mentality. Similarly in other grades. It has been repeatedly asserted that the reason for this condition in the public school, is the strong tendency of teachers to be guided by stature and chronological age more than by mental capacity. There is also a natural reluctance to giving up the bright pupil and passing him on to the next higher grade.

When it comes to college and university and the adult affairs of life the situation is apparently somewhat different. It seems there, to be largely a matter of volition. Every college professor knows of students whom he believes to have the intelligence to do much more than they are doing. The same in the daily walks of life. Modesty and lack of sufficient self-appreciation, undoubtedly plays a part. A lack of energy, generally if not always having a physical basis, is another factor. But probably the largest element with the adult population is a matter of habit. One who gets

his habits of life fixed, even though he finds himself doing work that is more or less distasteful largely because it does not call for all of his intellect, nevertheless hesitates to make a change because of the difficulty of starting new habits. A definite assurance, based upon scientific procedure, that these individuals have an intelligence greater than they are using and that they are capable of doing more extensive work would undoubtedly induce many of them to undertake something where they could be more efficient.

Once again society would be the gainer by a definite knowledge of the mental level of these persons. We have already stated that there are other things besides intelligence, that determine efficiency, but since intelligence even here is a more or less important factor in controlling and determining the effect of these other elements, we must take them into consideration in this discussion of mental levels.

It has not infrequently been objected that the mental level of a person is not sufficient; that the emotional nature is quite as important. It is very true that emotion plays a large part in individual efficiency. The man of violent emotion is liable to be inefficient through a wasting of his energy in emotional outbursts, while the man of weak

emotions is apt to be inefficient because he does not have the emotional stimulus to hold him up to his capacity. Besides that, one's emotional tone has much to do with his efficiency. The poet sings, "Give us, Oh, give us the man who sings at his work, he will do more, he will do it better." The man who is chronically unhappy not only accomplishes less in almost any line of work, but he is socially inefficient because of the way in which his chronic unhappiness interferes with his normal adjustment and adaptation to his environment. He tends to make others unhappy as well as himself and interferes with that perfect cooperation which is essential to the highest efficiency in modern society.

While all this is profoundly true, it must not be overlooked that the level of intelligence to a large degree determines the extent to which the individual either controls these tendencies of his emotional life or fails to control them. Nor must we forget the danger of reasoning in a circle here, since much of the chronic unhappiness is directly traceable to the fact that the individual is attempting to do a work for which his intelligence is not equal. Again, many times the emotional outbreak is due to an uncongenial environment which a better intelligence would prompt him to

change. Still better, as we shall see later this emotional condition has a physical basis, which while sometimes beyond control, is nevertheless in many cases capable of being much modified by a use of sufficient intelligence. So that while, in view of these facts of the emotional life, we may not say that one's efficiency is entirely proportional to his mental level, we can at least feel safe in declaring that a low mental level will exercise little or no control over the emotional life and therefore, those instincts and emotions which would tend to inefficiency will have their full force instead of being modified and controlled as they are by higher intelligence. So that in determining the mental level of an individual, we are ascertaining how much power of control he has over these fundamental instincts and emotions, a fact which is obviously of no small value.

We shall speak of only one of the other inherent traits that influence efficiency. It is common to speak of temperamental differences and to recognize that some temperaments are more efficient than others. While the doctrine of temperaments is still to a large extent a concept under which to hide our ignorance yet we do know that the term temperament covers some of those fundamental inherited differences which divide

human beings into several rather well known groups. Our only concern with the matter here is to point out again that the level of intelligence has much to do with the extent to which these temperamental peculiarities interfere with efficiency. While it is probably impossible to get away completely from one's temperamental handicaps, yet like most handicaps it is usually possible for intelligence to find a way around them. So that here also, the intelligence level is, to a large extent, the determiner of the efficiency, even in cases of adverse temperament.

So far we have endeavored to show that the subjective qualities upon which individual efficiency depends are: first, intelligence and second, another group of qualities more or less independent but nevertheless to a great extent controlled by intelligence. From this fact we wish to maintain the thesis that a knowledge of the intelligence level and a conscious effort to fit every man to his work in accordance with his intelligence level, is the surest way of promoting social efficiency. At this point arises a question which has frequently been asked, as to whether these mental levels, emotional types and temperamental peculiarities are so fixed as to be unchangeable and whether we are therefore justified in attempt-

ing to adapt the work to the individual rather than try to change some of these conditions to bring the man up to the level necessary for a particular task. In other words, to take a concrete example, suppose a young man has the ambition to become a physician. Even though he should find he has a low mental level, emotional peculiarities and temperamental idiosyncrasies, will not his ambition make up for all these negative conditions, so that he succeeds in spite of them? The reader will undoubtedly be able to cite instances that seem to indicate that this is the fact, but because the mental level has never been determined in these cases, it is possible to say that they are not cases in point because the mental level may have been adequate to the accomplishment of the task, and consequently it was not a case of the ambition or the circumstances overcoming mental weakness. Moreover, we are compelled to conclude that this actually is the situation because of what we know of the nature of intelligence. This comes from the fact that these conditions that we are discussing are definitely determined by a physical condition which is, to a high degree, unchangeable.

The study of feeble-mindedness has confirmed our belief that intelligence is a matter of brain

cells and neuron patterns, and still more definitely, it is a question of the development of the larger association areas of the brain, the functioning of which develops relatively late, and hence this development is particularly liable to arrest; moreover when such arrest has taken place, there is no evidence that it ever starts up again. This means of course, that once a person's mental level is determined, there is no known method of changing it. During the period of development throughout childhood and youth, a single determination is not always sufficient to enable us to say that any arrest has taken place. Indeed, if a child has the mental level corresponding to his chronological age, there is every reason to expect that his mental level will correspond to his age a year later and so on until complete development has taken place.

But experience has taught us that if the mental level is as much as three years lower than the chronological age, it is practically safe to assume that arrest has already taken place and that the level will never be higher, or at least significantly so.* Moreover, the indications are, that the nor-

* We are speaking here of uncomplicated arrest of development. Many a low intelligence rating is due to mental disease—insanity. Even in children this is not uncommon. In all such

mal development ceases, as a rule, somewhere near the completion of the adolescent period. Therefore, when the mental level of an adult has been ascertained, it is safe to conclude that this will never be changed. As explained in an earlier lecture, this of course, does not mean that the person may not acquire knowledge. In regard to the emotional peculiarities, it is believed that these are dependent upon the structure and functioning of the ductless glands and that up to the present time, there is no known way of materially changing these conditions.

There is, however, one exception to this which is so significant as to give us some hope that further results may eventually be obtained. The absence or loss of function of the thyroid gland gives rise to a peculiar form of physical and mental arrest of development found in the Cretin. It is found that the administration of the extract of thyroid gland materially changes this condition. Moreover, Cannon has discovered that the injection of the extract of the adrenal glands produces all the symptoms of fear and anger that may be brought about by any actual situation. These facts give hope that some day, there may

cases the "mental age" means very little; it is not indicative of a mental *level* but rather of an *average* of *mental inequalities.*

be some more definite control of these unusual emotional conditions. Whether temperamental peculiarities are also amenable to any such treatment is as yet entirely unknown, but one may still insist that whatever may be the possibilities of modifying these other conditions, it is the intelligence that is the final determiner in these cases, and that until some method of developing the larger association areas is discovered, there is no hope of our ever producing any material change in this line.

Thus far we have dwelt upon the dependence of efficiency upon intelligence and other subjective conditions. There are three other conditions that should receive at least a passing mention. One of these is the energy of the individual which is mainly a physical matter, a question of digestion and assimilation, heart activity and blood composition, to which again, the man of intelligence gives due consideration, while the unintelligent person is wholly ignorant of the problem and the relation of these conditions either to himself or to society.

It is hardly necessary to say more than has already been said about the relation of knowledge to individual and social efficiency. Obviously a person without knowledge has very little value;

except in the most simple routine matters, his knowledge may be limited to the simple thing of what to do. Other things being equal, the more knowledge one has the more he is likely to be able to meet the situation and adjust himself to changes of environment, and we have already stated to what extent the acquisition of knowledge is dependent upon the intelligence.

We cannot pass so lightly over what we may call the social adjustment. Robinson Crusoe on his island was efficient mainly on account of his intelligence, his energy, his knowledge and undoubtedly somewhat from his temperamental and emotional conditions. There was practically no problem of social adjustment. An approximately similar condition existed, perhaps, with primitive man when he lived largely by himself and far enough from his neighbors so that very few social adjustments were required. But as soon as man began to congregate in groups, there arose at once the question of social adjustment and the problem has increased in complexity with every move which has tended to crowd individuals closer together. We are accustomed to regard ability to adapt one's self to his environment as a measure of intelligence.

In view of the facts and considerations of the

previous lecture, it is easy to see that mental levels are of immense significance in relation to the problem of human efficiency. Since efficiency is largely a question of the wise adjustment of means to ends, it is obvious that persons of little intelligence will be capable of only the simplest adjustment. It is the inability to make any but the very simplest adjustments which constitutes feeble-mindedness, and it is because of this inability that the defective is so inefficient that he can rarely earn sufficient to maintain himself. Education for the normal child consists in giving him such a stock of experiences and general principles that he is able to adapt himself to any of the ordinary situations of life; and with increasing experience, to almost any situation that may come up. The feeble-minded person, on the other hand, cannot be given the general principles. He can only understand concrete situations. Consequently when a new situation arises which is different from any that he has seen, having no general laws or principles that he can call upon, he is unable to meet it. The extent of these limitations is often surprising. For instance, a feeble-minded girl who might have been taught to make bread according to a very definite formula would be utterly helpless if told to make half the usual

amount; while the cook who reasoned that if it took three minutes to boil one egg, it would take six minutes to boil two might be above the moron grade, although very little. When it comes to steaming eggs six minutes in a pint of hot water for one egg, it requires a relatively high grade of intelligence to understand that two eggs require a quart of hot water rather than twelve minutes in a pint of water.

It is easy to see that different material situations require different degrees of intelligence and it is common in the business world to estimate a man's mentality and decide whether or not he is capable of meeting a different class of situations.

It is not necessary to go further into this phase of the problem but there is another aspect of the same problem which is not so frequently appreciated. If adjustment to the environment even roughly measures the intelligence of the individual, the most difficult adjustment of all and that requiring the highest intelligence, is adaptation to the human environment. Many a person can adapt himself to live in any kind of a house, in any kind of climate and even to most any kind of food, but to be able to adapt one's self to all kinds of human beings is indeed difficult, and it is here that many persons of relatively good intelligence

fail. It is true that often the apparent cause of this failure is something else than the intelligence, namely, some emotional or temperamental peculiarity; but we have already seen that intelligence, if rightly applied, may, and we know does to a large extent, overcome this difficulty. But in proportion as these peculiarities are difficult the intelligence must be correspondingly high. The quarrels and squabbles and feuds that are so common in certain classes of society are usually found accompanied with at least only a moderate degree of intelligence.

That such failure of adjustment means inefficiency, both for the individual and for the social group of which such individuals are a part, is obvious. When these difficulties arise between individuals or groups of individuals of moderate intelligence, the matter seems easily explainable. But when, as not infrequently occurs, similar difficulties arise between a person of high intelligence and one of moderate intelligence another factor must be considered, for at first thought the explanation is not obvious. This factor again takes us back to our view of mental levels, since experience seems to confirm the view that the difficulty arises from the fact that the person of high intelligence has assumed that the other per-

son has equal intelligence and therefore, equal responsibility. Had the intelligent member of the controversy appreciated the fact that his opponent was of low mentality, and consequently of less responsibility, his whole attitude would have been different and his treatment different, with the almost certain result that no conflict would have occurred.

In the preceding discussion we have attempted to show that while intelligence or mental level is not the sole factor in human efficiency, it is nevertheless, the determining factor and that our social inefficiency of which we are more or less conscious, is due primarily to the large percentage of low intelligence and secondly to a lack of appreciation of relatively low intelligence by those of higher intelligence.

We have shown in the first lecture that it is possible to measure the mental level with a high degree of accuracy for the younger years, up to twelve at least, and with perhaps less accuracy up to nineteen. We have as yet no satisfactory method of determining with accuracy the higher levels. Experience has proved beyond a doubt that an intelligence below the eight year level is utterly incapable of functioning as an efficient member of society. From the eight to the twelve

year level, we have a group called morons who while of low mental efficiency are nevertheless in some cases and under most favorable circumstances capable of contributing more or less toward their own support. The proportion of those so capable naturally increases as the mental level rises. The favorable conditions alluded to, comprise first, a favorable temperament, second a favorable environment with careful training, and thirdly, a more or less constant supervision.

A favorable temperament is one that renders the individual quiet, obedient, easily satisfied and not requiring excitement; as contrasted with those individuals who are nervous, irritable and have a constant craving for excitement without which they are unhappy and to a large degree, unmanageable.

By favorable environment, we mean not only decent physical surroundings but associates who are moral, reasonably intelligent and have a human interest in this person who does not get along so easily as others—for example, an employer, overseer or foreman, who will have considerable patience, be willing to give needed directions and instructions and even repeat them until the person becomes capable of doing the work. It is the history of these people of low

mentality, so constant as to be almost diagnostic, that they are constantly changing jobs. This is largely because they make mistakes and require more direction than foremen are willing to give. In other cases, of course, it is due to the fact that with their weakened minds and lack of acquired attention, they cannot stick to one thing long.

In view of the foregoing facts and discussion it is easy to see why human society is relatively inefficient. Knowing nothing of mental levels beyond a crude appreciation of the fact that some men are certainly more intelligent than others, we have made no serious attempt to fit the man to the job. It is true the employer interviews the employee and attempts to form some subjective impression as to whether he is probably capable of doing the work required. Some employers rather pride themselves upon their ability to make correct judgment on such cases but most people feel that it is a lucky chance if they hit it right. We sometimes require the testimony of other employers but any one who has had large experience with these testimonials is very apt to say that they are worthless. In other cases we hold some form of examination but that again is notoriously unsatisfactory, largely as we now know because such examinations generally test only technical

knowledge which a person may have acquired by a system of cramming or by some other method and in either case is incapable of applying his knowledge when the conditions are changed.

Of late, progressive employers in industries have inaugurated a sort of tryout system and if in a reasonable time a man is not efficient in one line of work, they attempt to discover some other job in which he can work successfully; but all this is a crude makeshift in comparison to the results of a scientific determination of the mental level of the individual.

When one contemplates the enormous proportion of misfits that must exist in the industrial world and that such misfits mean discontent and unhappiness for the employee, one can but wonder how much of the present unrest in such circles is due to this fact. A man who is doing work that is well within the capacity of his intelligence and yet that calls forth all his ability is apt to be happy and contented and it is very difficult to disturb any such person by any kind of agitation.

Perhaps the most serious part of this whole problem of inefficiency concerns that lowest ten per cent who have a mental level so much lower than we could have imagined, so much lower than many people are willing to admit even today, so

wholly unrecognized and unappreciated that we have never understood it. As a result of this failure to understand this type, we have concluded that their failures were due to maliciousness or to lack of knowledge or to lack of opportunity. We have accordingly wasted an immense amount of energy, in trying to reform them by punishment or in giving them better opportunity. All of these efforts have been failures because we did not understand the nature of the people that we were working with. Had we appreciated the fact that they were of very low mentality and were in reality doing the best that they could with their limited intelligence, our treatment would certainly have been radically different. We would have eliminated them from the group of self-directing, efficient people and realized that they must always be dependent upon persons of superior intelligence and the only success that we could hope for would lie in the direction of placing them in an artificial environment where the conditions were simplified and kept simple by the care and oversight of intelligent people. We shall discuss this further in the next lecture.

It may be too much to expect that society will ever be so perfectly organized that every individual will be working at the highest possible effi-

ciency but it is not at all impossible to handle this lowest group. They are amenable to any reasonable treatment that we may prescribe for them and whenever society is ready to eliminate them from the main group and to provide for them in ways that will make them happy and as efficient as they, with their limited intelligence can be made, we will at least have increased the total efficiency to an almost unbelievable extent.

It is said that the busy bee, so often held up to us as a model of industrious work, actually works twenty minutes a day. The explanation of the great amount that he accomplishes is said to be in the fact of the perfect organization of the hive. Perhaps it would be wiser for us to emulate the bee's social organization more and his supposed industry less.

DELINQUENCY

A delinquent is literally one who has been left behind. In the army, on the march such a person is called a straggler; in the onward march of civilization he becomes one who neglects or fails to perform a duty. When the duty is something that is owed to society, the neglect to perform it becomes a fault or a misdemeanor, provided always that the person is supposed to have the capacity for performing this duty. It is in the latter sense that we use the term in the present discussion, in other words, it is social and moral delinquency that is under consideration.

The delinquent is the one who does not come up to the mark in the performance of those duties which the group has placed upon every member. Delinquency is an offense because it impairs the efficiency of the group. Just as the army cannot effectively attack the enemy if many of its members are stragglers. So the advance of the total group in civilization is impeded by every case of delinquency of its members. So far as the welfare of the group is concerned, it matters not what may be the cause of the delinquency, its

efficiency is marred just the same. So far as the individuals are concerned, we are accustomed to divide them into two groups: those whose delinquency is the result of conditions beyond their control and those whose delinquency is the result of carelessness, indifference or a willful refusal to comply with the demands of the group as a whole.

In the latter case we call the delinquency an offense, in the former merely a defect. Our treatment of the delinquent is determined thus by the classification. In the one case we hold the delinquent individually responsible; in the other case, society regards it as an unavoidable condition. In the former case we expect the individual to overcome his delinquency and we take every means to persuade him so to do. In the latter case society holds itself more or less responsible and attempts to remove the conditions and thus increase the total efficiency.

In the evolution of civilization there has been a constant change in the classification in the direction of a taking over by the group, of responsibilities that were formerly placed upon the individual. If therefore, we are to judge by the past we shall conclude that the future will find society holding itself responsible for many conditions now blamed upon the individual. It is

therefore profitable to discover the causes of delinquency and to ascertain under what circumstances these are under the control of the individual and under what circumstances they are beyond his control, with the result that we may determine whether the methods of treatment are to be applied to the individual, or whether society shall reform itself and its methods.

There has grown up another grouping of delinquency: into juvenile delinquency and adult delinquency or criminality. We shall consider first and chiefly, juvenile delinquency partly because it has been more studied, partly because we find the simpler and more fundamental causes, and partly because it is more profitable. It is more profitable because the causes once discovered are more easily removed and the individual reformed. We are fast coming to the practical, if somewhat hardhearted view, that efforts at reforming the adult offender are largely futile and consequently, it is wisest to deal with the adult offender as best we may, and to put our chief efforts upon the prevention of delinquency in the youth from whom the adult offenders as a rule, grow. In this way we shall soonest and most successfully eliminate the adult offender.

Fifty years ago the chief efforts of temperance

reformers were centered upon reforming the adult drunkard. Some thirty years ago this emphasis was changed and the chief efforts were placed upon the education of children, and the effects of alcohol upon the human system, and the adult drunkard was largely given up as a hopelass task, to be dealt with as a nuisance or tolerated as best we could until natural causes and the effects of his habits took him out of the way. The good results of this wiser policy have been evidenced in the great reduction of drunkenness and has a climax in the present national prohibition. It is logical and natural to expect a similar result when we attack crime and misdemeanor in the same way, namely by dealing with adult offenders by such summary methods as seem most efficient in protecting us from their criminal acts and devoting our main efforts at preventing juvenile delinquency. We shall indeed find that some of the causes of juvenile delinquency are equally causes of adult delinquency and crime, and that the methods that we may devise for preventing juvenile delinquency may equally well be applied to this class of adult crimes.

What, then, are the causes of juvenile delinquency? It is one of the triumphs of modern science that it has taught us to beware of the

vague general terms that formerly were considered satisfactory. Most of us were brought up to believe in, and to be satisfied with the answer to the foregoing question, that juvenile offenses were due to wickedness, some kind of inborn viciousness as unexplainable as it was unaccountable and irremediable. If we asked "What is wickedness"? we were told that it was sin, and were immediately launched into a theological discussion. When once it began to be realized how vague and useless were these answers to the question, then we began to apply to this problem some of our scientific methods of insisting upon definite, concrete, simple questions to be satisfied with equally definite and concrete answers. We asked ourselves "Why does a child go wrong?" The answer came, in the language of Superintendent Johnstone "Either because he does not know any better, or because he cannot help it." An answer somewhat startling at first thought and yet one which leads to further analysis with surprisingly satisfactory results.

We realize that we have always excused some things in some children on the ground that they did not know any better. It is equally clear that we have been in the habit of excusing some misdemeanors of some person on the ground that

they could not help it. It is with the feeling of pity rather than censure that we read that some person in a fit of insanity has killed a fellow being. The new thought in this connection is that we have only to extend these two principles in order to account for practically all of juvenile delinquency and a large part of adult criminality. The barrier which until recently has prevented our extending these principles has been a dogmatic assertion that many people, in the phraseology of the old song, are "big enough and old enough and ought to know better." What we did not realize was that size and age are not sufficient to determine responsibility, and that the real condition of the man, the forces actuating him to conduct, are not so easily discerned. We excuse a man for his act or his failure to act when he is obviously sick. We are beginning to realize that many a person suffers from actual and serious physical illness who gives no outward sign of it, at least to the layman and often even to the physician. Similarly have we learned that there are many people who, while they are big enough and old enough nevertheless have not mind enough to learn to know better.

In our thinking on these topics we have been guilty of many serious inconsistencies and con-

tradictions. On the one hand, we have reasoned that no sane, intelligent man would commit the crime that this particular man has committed, nevertheless we have looked at this man and said that he is both intelligent and sane, and being intelligent and sane he is responsible for his crime and therefore must be punished. We next ask why should he be punished? What is the purpose? It has been said that there have been at least three stages in the evolution of our thought on this question. The old primitive idea was that of vengeance, the crude notion that if the perpetrator of the crime was made to suffer that it somehow atoned for the crime. It was the eye for an eye and a tooth for a tooth idea. It in no way restored the original conditions or removed the harm that had been done, but it somehow satisfied a primitive idea of vengeance. Later as human intelligence developed and man began to think of these things, he said "there is no sense in this procedure, we should only punish in order to deter others from committing a like crime." That idea still prevails and is the chief argument for capital punishment and the long term sentence. What may be called the present conception of punishment, at least in the minds of those who have given it the most thought and attained

the broadest view, is that punishment, legal punishment of adult criminals, like the simple punishments of children, is for the purpose of reforming the criminal. The investigation of the causes of delinquency and crime leads logically to a fourth attitude toward the whole question, namely that of the prevention of crime as vastly better even than curing the criminal.

Now the one thing that makes all this rational and easily intelligible, that puts us in the right attitude toward the problem is the doctrine of mental levels. When we realize that it is not a question of stature or age but of mentality that determines an individual's conduct, we shall cease to rely upon these factors but instead, demand to know what is the mental level of the offender, then we may discover that perhaps he did not know any better, not because he was not old enough, not because an effort had not been made to teach him, but because he had not intelligence enough to learn.

The effect of this view upon our attitude toward the offender is obvious, and this new attitude is of the utmost importance for our success in dealing with offenders, as well as with the whole problem of prevention. It is fully appreciated by the intelligent, that the fundamental

condition for winning a man to our way of thinking is to convince him of our friendliness and interest in his welfare. Once let him get the impression that we are actuated by any other motive and every argument that we use is either denied or suspected. Now the moment we assume that a man is guilty and responsible, we put ourselves in a hostile attitude and cannot assume or pretend to that attitude of friendliness which is essential if we are to win him over to our way of thinking. On the other hand, once we have accepted the view that there are many persons of such inferior mental level that they either cannot know the significance of their action or cannot control their action and the possibility of our hostile attitude is removed, and we meet the situation in an attitude of sympathy or pity, the attitude most calculated to bring about best results.

Is it after all rational, having thrown a man into a 5 x 7 stone cell closed by a steel barred door, then talking through the bars to tell him we love him and expect him to believe it?

So much for the *a priori* argument that since there are mental levels we may expect persons of the lower levels to commit offenses. Let us now see what are the facts. Are the persons who commit offenses really of low mental level? The

answer is no longer in doubt and it is not necessary at this time and place to quote statistics or cite individual investigations. It is sufficient to state that every investigation of the mentality of criminals, misdemeanants, delinquents and other anti-social groups has proven beyond the possibility of contradiction that nearly all persons in these classes and in some cases all are of low mentality. Moreover, a large percentage of all of the groups are of such low mentality as to be properly denominated feeble-minded. These facts were at first only accepted and pointed out by those who were experienced in the use of tests for determining the mental level, and who were also experienced with the feeble-minded. But once it was pointed out it was readily accepted by a large proportion of those who had had most experience with the various classes of delinquents. A third group who had less faith in the tests of mentality, or whose insistence upon the responsibility of all human beings was great, or whose concept of low mentality was restricted to the idiot or the imbecile, have finally more or less reluctantly admitted the facts. Actual tests of the mentality of scores of groups of criminals and delinquents, have given percentages varying from ten to eighty. This wide variation is due partly to the

way in which the group has been selected and partly to the greater or less conservatism in interpreting the results of the tests.

A few years ago a score or more wardens of penitentaries and reformatories were asked what proportion of their inmates were, in their opinion, mentally defective. Their answers were of course based solely upon their subjective impressions, the result of working with these people for numbers of years. The answers varied from none to a hundred percent; the average was about fifty percent. The majority of respondents giving percentages between thirty and eighty. Finally the results in the more recent tests since the methods have been perfected and are better understood, have been steadily tending towards the larger percentage.

In view of these facts it is no longer to be denied that the greatest single cause of delinquency and crime is low grade mentality, much of it within the limits of feeble-mindedness.

Since we are discussing delinquency and its causes, we must go beyond our main problem of mental levels and mention the other causes. Insanity as a cause of crime has long been recognized and needs no discussion here. There is however, a new phase of this subject that is of

such great importance as to merit a brief mention. Studies of juvenile delinquents have abundantly proved that a fair percentage of them are suffering from mental disease, which is often not clearly enough marked or sufficiently developed to be definitely named insanity. Some cases are clearly cases of dementia praecox; others are proved by later experience to be the first incipient stages of that condition; other conditions detected still earlier have been spoken of by Myer as the soil upon which dementia praecox grows. There are still other psychopathic conditions not clearly to be classed in any of the recognized groups of insanities, yet nevertheless, as the sequel often proves, clearly cases of mental disease. Another cause of delinquency is epilepsy or epileptical conditions including the so-called psychic-epilepsy and epileptic equivalents. Healy has described a group which he calls cases of "mental conflict."

Finally we pass to the acquired mental conditions, which may range all the way from those children who have been brought up in crime by their criminal parents, have been taught and practiced in the criminal acts, down to those who merely yield to natural instincts without ever having had the good fortune to have the evils of such conduct pointed out to them or to have suffered

the consequences of their wrong doing to such an extent as to compel them to break the vicious habit.

Lastly we have a small group whose conduct cannot be accounted for on the basis of any of the above mentioned causes; a group that would justify, if it could be justified, the old concept of pure wickedness. Nevertheless, we cannot fail to make use of the argument of progressive approach and claim that since we have accounted for nearly all of the crimes and misdemeanors on the basis of more or less well understood physical, mental or social conditions, if we could get at the facts we would find these few also were to be explained without recourse to the doctrine of original sin.

The purpose of studying causes is of course to know better how to prevent as well as to treat and cure. We must now consider the treatment and prevention of delinquency and crime. It goes without saying that where the causes are known and can be removed, they should be removed. If alcohol has caused a large proportion of adult criminality, national prohibition may hopefully be looked to to prevent that proportion of crime. But when once the crime or misdemeanor has been committed, and especially when

the cause though known, cannot be removed, how shall we treat the offender? In the case of environmental cases it is obvious that the individual must be removed from the bad environment. This is not always sufficient, as in those cases where the person has formed vicious habits so that he will continue his offending practices in almost any environment. When such is the case it seems that there is nothing to do but to so limit his environment that it shall become impossible for him to continue the practice. The extreme is of course confining such a person in a prison for such length of time as it may take to break the habit. How long a time that will require, can often be determined only by experiment such as placing the person on parole after a certain time and giving him an opportunity to demonstrate what is his actual condition. Where the conduct is due to disease, mental or otherwise, if the disease can be cured, that generally means the cure of the offense. In the case of incurable diseases it is obvious that the only thing to do is to care for the offenders but they must be cared for as diseased persons rather than as criminals. Our institutions for the criminal insane offer an illustration of the extreme of this condition.

Finally we get back to our specific problem of

the cases of low mentality, such as the feeble-minded. Here we have two distinct groups; those who are amenable to treatment and those who call for the application of methods of detention. The feeble-minded person who has committed an offense may or may not have formed the habit that is more or less difficult to break. As a matter of fact, experience has proved that a very large proportion of the feeble-minded delinquents and criminals have not formed any per-persistent habit but rather have merely reacted to the wrong treatment which they have received from persons who did not understand their mental level. Once such defectives are placed in the care of persons who do understand them, there is no recurrence of the offense.

The following is typical:

A gentleman brought his seventeen year old boy to an institution for feeble-minded. When arrangements had been made the father took his departure, the superintendent accompanying him to the door leaving the boy in the office. Upon his return to his office the superintendent said to the boy, "Now, John, you may go to your cottage." John replied, "I ain't going to the cottage. I ain't going to stay here. I wouldn't stay here even if God Almighty paid the bills. You

can't telephone, I have cut the wires. I have cut your gloves all to pieces and I have cut your overcoat." This was true, except the last, and well shows his desperate character. He, of course, did go to his cottage and was soon so taken up with his new surroundings that he forgot his grouch and the next morning was seen going to his "work" arm in arm with a middle grade imbecile, perfectly happy; and during his entire stay of some years never gave the slightest trouble.

In at least ninety percent of cases the feeble-minded delinquent when placed in the institution becomes thoroughly tractable and obedient, a pleasant and agreeable inmate not to be distinguished from the others of his mental level. The few who have formed habits which they cannot control, must of course like the others that we have spoken of be kept in rather close quarters. The most troublesome group in this class is the sex offender, especially the female. The male is not quite so serious a problem since his feeble-mindedness renders him inexpert in making opportunities for wrong-doing and normal women will seldom have anything to do with feeble-minded men. With the female, it is quite different; having once learned the significance of this life she is always impelled by this instinct

common to humanity; and exercising no control over her impulses easily finds a male to accept what she has to offer. The marked difference between the girl who has been brought up carefully in an institution and kept free from vice and the girl who comes into the institution after having formed these habits, points most unmistakably to the necessity of discovering those girls of low mental level and segregating them early and keeping them at least until the first strong impulses of adolescence have become somewhat modified.

There remains one group to be considered. Those of mentality just above that which is included in the group of the feeble-minded, but below that which insures normal conduct. This in turn raises the question of how these two are to be distinguished; where is the line to be drawn between feeble-mindedness and what is technically called the dull normal person? It is a difficult matter and possibly we may never be able to draw it accurately and yet it must be drawn for practical purposes. In law the matter seems to turn on the question of right and wrong, at least the law excuses from responsibility only those persons who are believed not to know right from wrong.

Since this has given rise and continues to give rise to much discussion, it is worth while to consider again the thesis which we wish to maintain and have repeatedly stated, that the feeble-minded even of high-grade, do not know right from wrong, in the sense and to the degree that must be within the meaning of the term as used in the law if it is to determine responsibility. When we say that a person who knows that an act is wrong is responsible if he does it, we can only mean that he has a clear concept of what it means for an act to be wrong and that this is one of those acts. It is not reasonable to conclude that the law means that to know that it is wrong is simply to be able to *say* that it is wrong any more than you would conclude that a child knew right from wrong because he could read the two words in a book and knew the one from the other.

It has proved to be exceedingly difficult to get intelligent people, especially parents, to appreciate the real condition of the child in respect to this matter. Most every intelligent parent who has not thought it out says, "A child of twelve not know right and wrong! why my child of six knows right and wrong." The idea is a common one. It is a confusing of what one knows from

concrete experiences, with an abstract principle. The child of six has learned that a good many individual acts are wrong; but that is very far from knowing an abstract principle of right and wrong. It is still another step to recognize a specific action as belonging to the group of wrong things. A child of six or even less knows that unsupported objects fall to the ground and yet it is probable that no one would claim that a child of six or even twelve understands the law of gravitation. It is always difficult for one to comprehend how another person can fail to understand something that he himself understands so well. It is so obvious to us that lying, stealing, killing and other more common offenses are wrong that it is difficult for us to appreciate that a lower grade of intelligence does not have the same appreciation of these things that we do.

The only way for us to come to a correct judgment as to children's abilities in this line, is to get at it indirectly. Let us see if we as intelligent adults are ever puzzled on this question of right and wrong. We think we know that it is wrong to steal. Let me ask you, "Do you ever steal?" If I convict you of having stolen something in the past twenty-four hours, your defense as an honest man will be that you do not call it stealing

and you and I may have a heated argument over the definition of the term. For example, you are riding in a street car; through an oversight the conductor does not collect your fare, you know that he did not collect it but you do not go to him and hand him the nickel. Did you steal five cents from the car company? There is a frank difference of opinion. Some hold that it is stealing, others maintain that it is the business of the conductor to collect fares. If he does not do it, he and not the passenger, has committed a fault. If intelligent beings are in doubt on this question, can we expect that children should not be in doubt? There are business deals carried through continually which some people hold as dishonest, while others maintain equally strongly that they are perfectly legitimate. If we are in doubt about these somewhat complicated problems, must we not admit the possibility that children may be ignorant on what are to us the most simple problems?

The writer has maintained and still maintains that a young man seventeen years of age with a mentality of eleven, who killed his school teacher did not know the nature and quality of his act and that it was wrong. That sounds like strange doctrine but let us consider. Is it wrong to take

human life under any circumstances? There are those who answer in the affirmative, but the majority of people do not so answer, as is evidenced by the fact that the majority of our States approve of capital punishment. It is right to take life under certain circumstances. In ordinary civil life this right has been restricted in legal procedure to the execution of murderers, but when a nation is at war the rightfulness of taking life is extended enormously. A sentinel is shot for sleeping at his post and most people think that is right. Is it absurd to imagine that a twelve year old child could not understand how military necessity makes it right to kill a man just because he fell asleep when he was expected to keep awake? Even in civil life we allow men to kill others and do not call it wrong as for instance, in self defense. A considerable proportion of the time of our courts is spent in deciding particular cases as to whether it was right or wrong for the man to kill. Again we repeat: if it is so difficult for men of high intelligence to agree on these cases must we not admit that children may well be in doubt in cases that are to us much simpler? Moreover, most of these criminal acts are done in response to primitive, natural, human instincts. Lying, stealing and killing were at one period,

man's virtues. It is because we have come to live together in groups where each is dependent upon the rest, that these become vices and the more closely modern methods of living and civilization crowd us together, the more we find it necessary to regard an ever increasing number of acts as wrong.

But some one says, ask the child and he will tell you that he knows it is wrong. But he might tell you he understood the binomial theorem. Would you believe him without testing it? In legal procedure we do not believe a man even when he says that he committed the crime. We cannot convict him on his own confession, except under special conditions. If you ask a child how he knows that it is wrong, he may tell you either that he did that thing once and got punished for it or else that he has heard somebody say it was wrong.

To be able to say a thing is wrong because someone else has said it, is very far from knowing right and wrong, and that is the fact usually overlooked. We think because children can say what we would like them to say that therefore they understand. When it comes to the question of responsibility, this is a serious error. Your six year old child or even your ten year old, whom

you think knows right and wrong, in reality knows only that certain things which he has actually experienced and for which he has suffered punishment, are wrong. For the rest it is mere hearsay and not a matter of conscience at all. In other words, it is again the question of hearsay knowledge as contrasted with an intelligent understanding of the case. It may be maintained that the child does understand that the thing is wrong but is unable to control himself. We will not deny that that is a description of cases that do exist and yet it is improbable even in those cases that the child appreciates that the act in question is exactly like other acts that he knows are wrong. Precisely as a man kills another without realizing that it comes under the general law of 'Thou shalt not kill.' He thinks that killing in self defense is not the kind of killing referred to in the law. When Jean Gianini killed his teacher, he said he believed it was right and he would do it again under the same circumstances. He thought that he had been wronged by the teacher and it was perfectly right for him to take vengeance as he did. His attitude was precisely that of a man who shoots another in self defense and says he would do it again under similar circumstances. The only difference is that in a case of self de-

fense, adult high intelligence maintains that this is the proper procedure, whereas the same intelligence maintains that Jean Gianini's act does not come under the act of justifiable homicide, but Jean Gianini is feeble-minded and totally unable to appreciate the difference in the circumstances of the two cases. Moreover this is entirely in agreement with the results of study into the mental makeup of the feeble-minded. A fundamental principle long recognized is that these persons cannot deal with abstractions. They can learn concrete experiences, but they are unable to generalize from those experiences and formulate a general principle and no one is likely to deny that moral principles are the hardest of all to formulate.

As we have already pointed out, we ourselves are not able to agree that all stealing is wrong or all lying or all homicide. A moron girl of seventeen years of age was recently asked why she committed her first sex offense. She replied perfectly naïvely, "Because a man kept asking me to." It is very probable that she would have said that she knew that it was wrong, nevertheless it is clear that she had no general principle of the wrongfulness of that type of act and not having such general principle, the fact that a man re-

peatedly asked her to do this, made a special case of it and not one that fell under the formula that she had learned to repeat. The same girl was asked why she shot a man and replied, "Because a man told me to." In other words, one does not know that a thing is wrong until he has had sufficient experience in that particular line for it to become what we might call a moral reflex, to be settled in the lower nerve centers so that no question in regard to it arises. Honest people have thus reduced the question of deliberately stealing and upon every occasion that would come under that head, their action is prompt and emphatic. It is stealing and that settles it, they will not do it; but we have only to modify the circumstances a little, so that a doubt arises and one hesitates as to whether this act would be stealing or not, to find the best of us sometimes yielding. In those cases we do not know that it is wrong. If we did, we would not do it.

We conclude then, the feeble-minded do not know right and wrong though they may be taught and will then know, that a great many acts are wrong. When we come to the group on the borderline between the feeble-minded and the normal or only a little above that line, we have no rule to follow. Each must be settled on its own

merits; at least until the time comes that we know more about these cases. The treatment of these cases however, is not so difficult since it is entirely possible that we have a right to assume that even if they do not know that it is wrong, they are capable of learning that fact, and therefore the particular occasion should receive its proper punishment as a part of their education. We are thinking now of the type which has been designated as the defective delinquent. These are particularly girls who are delinquent along sex lines. Such delinquency cannot be tolerated and if these girls show an incapacity for controlling themselves and acting properly, they must be placed where they will not meet the temptations and they must be kept there indefinitely or until the habit is broken down.

It remains only to speak of the intelligent criminals. These are divisible into at least two groups, the accidental criminal and the professional or the professional in the making; or perhaps we should say the voluntary and the involuntary criminal. The accidental or involuntary criminal needs no discussion. He is the man who has unintentionally violated the law and were it not for the fact that it is believed to be unwise to allow any exceptions, we should always excuse

such a man and let it go; but as it is always easier to follow the rule than to justify exceptions, these cases must usually pay the penalty.

Nor shall we at this time discuss extensively the volitional criminal, the man who chooses criminality as a career. That has been discussed by others and it is only necessary to point out here that inasmuch as a large percentage of criminals prove to be of low intelligence, all criminals should be examined as to their mentality. Those who are found to have normal and even above average mentality must be explained of course by some other means such as environment or peculiar temperament and treatment should be applied according to the conditions found. We may have to conclude that for these cases the most drastic punishment is necessary. In other words, if there are people who deliberately and intelligently choose a life of crime, then the results should be made so uncomfortable that every such intelligent criminal would perceive that it was undesirable and did not pay.

Finally we must point out that if the doctrine of mental levels were applied to problems of delinquency and criminality, a large proportion would be found to be of such low mental level that they could be cared for as feeble-minded.

Another large group would be found to be only a little above this level and when their mentality was taken into consideration, their treatment could be made simpler and more rational and with better results. This would leave us with our high-grade group which would be relatively so small that it would be possible to devote all our energies to an intelligent study of those cases, with the good hope that when thus studied we would be able to solve the problem.

We have attempted to show that the recognition of mental levels and the treatment of delinquents and criminals in accordance with their known mental levels would enormously simplify the entire problem. In other words, we would gain what is always gained by a rational system of classification. We should divide our problem into groups and treat each group separately according to its merits. It may confidently be predicted that this will be the procedure of the future and when it comes to be the general practice, we will have removed many of our special problems.

Lest it be thought that this is an idle prophecy, we shall conclude this lecture with a brief account of the steps actually taken in this direction.

In 1913 the Legislature of Ohio passed a law creating a Bureau of Juvenile Research to which

all minors who in the opinion of the Juvenile Court required State care, must be sent for examination and study before being finally assigned to an institution. This means that every such child gets a thorough mental and physical examination and investigation into the conditions that may have led him to commit his misdemeanor.

The Bureau is not yet thoroughly established because the Legislature which passed the law referred to, failed to appropriate any money to provide buildings for the purpose. Later this oversight was corrected and $100,000. appropriated. Those buildings are now practically completed. They include two cottages in which the children will be housed as long as they are needed to be kept under observation. As soon as their case is diagnosed, they are assigned to the appropriate institution; whether that be the School for the Feeble-Minded, the Hospital for the Insane or the Industrial School, or if it is thought more suitable, they may be placed in private families.

The third building is a large laboratory where may be carried on all kinds of investigation that the cases seem to warrant. There will be trained psychologists for making the mental examinations; also psychiatrists for investigation of pos-

sible mental disease; there will be physicians for making thorough physical examinations; there will be a bio-chemist for the study of the physiological functionings; there will be facilities for doing minor surgery, such as adenoids and tonsils, and X-ray work; there will be dentists and there will be teachers and physical trainers and industrial trainers. It is expected that the great majority of children will not need to be detained long, the diagnosis will be fairly easy to make, but in the difficult cases the children may be kept in the cottages as long as is necessary, even weeks or months.

A fourth building has been provided for by a legislative appropriation of $25,000. This will be a hospital for the sick children.

Another clause in the law permits the Bureau of Juvenile Research to receive for examination and recommendation any child from any person having legal guardianship. This is indeed progress for it looks not to cure but to prevention. Already there are being brought in many children who are a little peculiar, a little unusually troublesome at home or at school; and their cases are diagnosed and treatment recommended without waiting for them to commit a misdemeanor and get a court record.

Nor does the Bureau confine its work to the mentally defective children. Many normal children are examined and many precocious children, so that mental levels are being determined and by means of a careful system of records every case becomes the basis for a future study as later examinations are made. Besides the work done in the laboratory, which is located in Columbus, trained clinicians are being sent out over the State to examine children in Children's Homes, in Detention Homes and other places where they cannot conveniently be brought to the laboratory. Ultimately there will be sub-stations of the Bureau in the principal cities so that it will not be necessary to send all the children to Columbus; they can be examined in their home city and from there be assigned to their proper institutions. School children, I mean entire schools, are being examined and recommendations made for special classes in the public schools. Already more than five thousand children have been examined and careful records are on file. When it is remembered that this is a State Bureau serving a population of five million people, it is seen how vast is the work to be done. At least a beginning is being made and some of the children of Ohio are in a fair way to receive scientific treatment.

It is too early to announce results or to make predictions for the future, but it may be said that the results bear out all the statements that we have made in regard to the large number of cases of children of arrested development or having low mental levels or suffering from child insanity. The evidence is fast accumulating to prove that in the vast majority of cases when the child does wrong, it is either because he does not know any better or because he cannot help it.

MENTAL LEVELS AND DEMOCRACY

The discoveries that each individual has his mental level which, once established, he cannot exceed and that the level of the average person is probably between thirteen and fourteen years, explain a great many things not previously understood, but also raise some questions that are at first sight, somewhat disturbing.

One of these questions is: What about democracy, can we hope to have a successful democracy where the average mentality is thirteen? The question is an interesting one and suggests many other questions upon which the doctrine of mental levels can certainly throw much light. Democracy of course means the people rule, as contrasted with aristocracy which means literally, "the best" rule. We would probably all agree that we ought to be ruled by the best, but unfortunaately, that term *best* is one of those indefinite terms which must be limited before we can discuss it. It might mean best in physical strength, or best in knowledge, or best in intelligence, or best in administrative powers, or best in any one of the many other things. Now democracy is not

opposed to a rule by the best. The essential point of democracy is that every citizen shall have a chance to say whom he thinks is the best. "Governments obtain their just powers from the consent of the governed."

In the case of the aristocracies of the past, a few people have said, "We are the best, therefore we will rule," and best has often meant best in physical strength. Had those rulers been best in every sense, the probabilities are that democracy would never have arisen, but because they were often not wise, not humane, not considerate of the welfare and happiness of the masses, those masses gradually developed the idea that they wanted to have something to say as to who was best.

Now it is a question of whether a people whose average intelligence is that of a thirteen year old child can make a sufficiently wise choice of rulers to insure the success of a democracy or as it would often be put, can children of thirteen govern themselves? The fact that we here in the United States have done it for a hundred and forty years is of course an all sufficient answer, unless new conditions are arising which will make the methods of the past, prove a failure in the future.

Let us not at the outset, commit the fallacy of the average. The average only means that there

are about as many of lower intelligence as of higher. We have seen that while the average is perhaps thirteen to fourteen years and there are twenty-five million people of this intelligence and forty-five million still lower, there are also thirty million above the average and four and one-half million of *very superior intelligence.* Obviously there are enough people of high intelligence to guide the Ship of State, if they are put in command.

The disturbing fear is that the masses—the seventy million or even the eighty-six million—will take matters into their own hands. The fact is, matters are already in their hands and have been since the adoption of the Constitution. But it is equally true that the eighty-six million are in the hands of the fourteen million or of the four million. Provided always that the four million apply their very superior intelligence to the practical problem of social welfare and efficiency.

Lower intelligence will invariably and inevitably seek and follow the advice of higher intelligence so long as it has confidence in the individuals having the higher intelligence. That is a proposition so invariable as to be recognized as a law of human nature.

The crux of the matter however, lies in the

word *confidence*. Here is the root of our social troubles and here is found the explanation of everything from local labor troubles to Bolshevism. Intelligence has made the fundamental error of assuming that it alone is sufficient to inspire confidence. A little thought shows that this is a blunder almost worthy to be called stupid. Intelligence can only inspire confidence when it is appreciated. And how can unintelligence comprehend intelligence? There is an old Persian proverb which says, "The wise man can understand the foolish because he has been foolish; but the foolish cannot comprehend the wise because he has never been wise."

The one source and efficient cause of confidence of lower intelligence for the higher is what we call the human quality. The poet says of the great Agassiz, "His magic was not far to seek—he was so human." It is the man whose activities show that he cares for the welfare and the happiness of those of less intelligence, that has their confidence, their vote and their obedience.

The inmates of the Vineland Training School, imbeciles and morons, did not elect Superintendent Johnstone and his associates to rule over them; *but they would do so if given a chance because they know that the one purpose of that*

group of officials is to make the children happy.

Whenever the four million choose to devote their superior intelligence to understanding the lower mental levels and to the problem of the comfort and happiness of the other ninety-six million, they will be elected the rulers of the realm and then will come perfect government,—Aristocracy *in* Democracy.

We may suggest in passing, one reform not inconsistent with the above view. While we all believe in democracy, we may nevertheless admit that we have been too free with the franchise and it would seem a self-evident fact that the feeble-minded should not be allowed to take part in civic affairs; should not be allowed to vote. It goes without saying that they cannot vote intelligently, they are so easily led that they constitute the venial vote and one imbecile who knows nothing of civic matters can annul the vote of the most intelligent citizen.

Before passing to a discussion of education according to mental levels, we may perhaps be permitted to apply the principle to another problem that looms up rather large at the present time, namely, socialism and especially its extreme form of Bolshevism. Most of the arguments used by the more intelligent members of these groups are

fallacious because they ignore the mental levels. These men in their ultra altruistic and humane attitude, their desire to be fair to the workman, maintain that the great inequalities in social life are wrong and unjust. For example, here is a man who says, "I am wearing $12.00 shoes, there is a laborer who is wearing $3.00 shoes; why should I spend $12.00 while he can only afford $3.00? I live in a home that is artistically decorated, carpets, high-priced furniture, expensive pictures and other luxuries; there is a laborer that lives in a hovel with no carpets, no pictures and the coarsest kind of furniture. It is not right, it is unjust." And so in his enthusiasm for the supposed just treatment of the workman, this gentleman who has been converted to socialism will go on pointing out the inequalities which he considers unjust. As we have said, the argument is fallacious. It assumes that that laborer is on the same mental level with the man who is defending him. It assumes that if you were to change places with the laborer, he would be vastly happier than he is now, that he could live in your house with its artistic decorations and its fine furniture and pictures and appreciate and enjoy those things. Or if it is admitted that this particular laborer could not enjoy it, your gentle-

man socialist is apt to fall back upon the argument that it is due to the fact that he has not been brought up right, his environment has been poor and so he is accustomed to such conditions and could not enjoy anything better. Therefore we should take the children and educate them to these ideals.

Now the fact is, *that workman* may have a ten year intelligence while you have a twenty. To demand for him such a home as you enjoy is as absurd as it would be to insist that every laborer should receive a graduate fellowship. How can there be such a thing as social equality with this wide range of mental capacity? The different levels of intelligence have different interests and require different treatment to make them happy, and we are committing a serious fallacy when we argue that because we enjoy such things, everybody else could enjoy them and therefore ought to have them.

As for an equal distribution of the wealth of the world that is equally absurd. The man of intelligence has spent his money wisely, has saved until he has enough to provide for his needs in case of sickness, while the man of low intelligence, no matter how much money he would have earned, would have spent much of it foolishly and

would never have anything ahead. It is said that during the past year, the coal miners in certain parts of the country have earned more money than the operators and yet today when the mines shut down for a time, those people are the first to suffer. They did not save anything, although their whole life has taught them that mining is an irregular thing and that when they were having plenty of work they should save against the days when they do not have work.

Socialism is a beautiful theory but the facts must be faced. One of the facts is that people differ in mentality and that *each mentality requires its own kind of life for its success and happiness.* There are undoubtedly, a great many abuses; there are a great many ways in which intelligent men, men of means, might alleviate some of the conditions of the poor, but here again, the only way it can be done is by recognizing the mentality of the poor and treating them in accordance with that mentality. For example, if we discover a man with fifteen year intelligence who on account of misfortune, bad luck or something else, is down and cannot get a start, then we may profitably give that man as much as he needs to put him on his feet again, knowing that once that is done he will succeed. Here is another

man whose outward circumstances look much like the former but when we examine him we find he has a ten year mentality. To give that man money is a mistake for he has not intelligence enough to use the money when he gets it; though you gave him a thousand dollars today he would be poor tomorrow.

All this has been said often. These facts are appreciated. But it is not so fully appreciated that the cause is to be found in the fixed character of mental levels. In our ignorance we have said let us give these people one more chance—always one more chance.

Much money has been wasted and is continually being wasted by would-be philanthropists who give liberally for alleviating conditions that are to them intolerable. They admit the money is being wasted. They do not understand that it is being wasted because the people who receive it, have not sufficient intelligence to appreciate it and to use it wisely. Moreover, it is a positive fact that many of these people are better contented in their present surroundings than in any that the philanthropists can provide for them. They are like Huckleberry Finn who was most unhappy when dressed up and living in a comfortable room at Aunt Polly's and having good

food and everything that Aunt Polly thought ought to make him happy. He stood it for a few days and then he ran away and went back in his hogshead with his old rags on, and getting his food wherever he could pick it up.

Aunt Polly's efforts were wasted because she did not appreciate the mental level of Huckleberry Finn.

We must now consider what is the wise procedure with the various low levels of intelligence. As we stated in an earlier lecture, all work looking to the eventual control of this problem of social efficiency as conditioned by mental levels, must begin with the children. When children enter school their mental level should be determined. Several groups will be found. At the top are those who are exceptionally intelligent, well endowed, who test considerably above their age. This group subdivides into two: first, those who are truly gifted children and second, those whose brilliancy is coupled with nervousness. The superior mentality of the truly gifted will mark them throughout life. They should have the broadest and best education that it is possible to give, not necessarily hurried through the grades at the most rapid rate but while advancing somewhat faster than the average child, they should

be given a broader experience. There should be opportunities for them to do many things, in each year, that the average child has not time to do.

The nervously brilliant group is a very important one. It contains those children who are brilliant in school, but whose brilliancy is evidently due to a very high-strung nervous system. It is a case of the well-known but little understood relationship between genius and insanity. While these children may probably not be called insane they are nevertheless in a stage of nervous instability which, while it happens to make them keen, acute and quick, and they give the appearance of brilliancy; on the other hand, it is an exceedingly dangerous situation since experience has taught that a little pushing or overwork may very easily throw them over definitely on the insane side. These children should be treated with the very greatest care.

A second group comprises the moderately bright children, a little above average and yet not enough to be considered especially precocious. They should however, have their condition taken into account and they should not be compelled to drudge along with the average child.

Then comes the *average child* for whom our school systems at present are made, and the only

group whom they adequately serve. The question as to whether the training that we are giving this group in the public schools is the best that can be devised is not for us to discuss here.

Our next group is the backward. Those children who are not quite up to age, who have considerable difficulty in getting along with their work and yet who do get along after a fashion. This group should be carefully watched from the start and eventually they will differentiate again into two divisions, possibly three. Perhaps some of them may later on catch up with the average child. Some of them will go through their whole educational career with the same slowness, nevertheless they will get through. There are still others, who while only a little backward at this first examination, later on will show that they are actually feeble-minded children.

Finally there is the group of definitely feeble-minded. In many cases it will not be possible, at this time, to predict just what their final mental level will be. This group will ultimately divide into several grades according to their mental level. There will be the morons with their three or four subdivisions, that is to say, those who have a mentality of eight, those of nine, or ten or eleven, perhaps of twelve. Then come the im-

beciles with their mentality of seven and six and five; and each of these should receive special training and treatment.

The lower grade imbeciles will probably not get into the school but will be recognized at home as defective and kept there until they can be placed in an institution for the feeble-minded.

Now it is impossible to decide from this single examination of the children on entering school just what kind of training is best for each one. Consequently with many of them it will perhaps be necessary to start with the regular work of the first grade, but they must be carefully watched and if it is found that they are not progressing like the other children then they should promptly be placed in the other group where the children are taught to do things rather than to read and write about things.

The group that is recognized as distinctly feeble-minded should not be worried with reading and writing at all, but be at once placed in a group where they will be taught various activities. The purpose of this kind of training is twofold, first to develop physical coordinations and second to train them to do useful things. They may all be started at the same point but the relatively brighter ones will progress faster and

should the more quickly get on into industrial and vocational training.

The starting point for these cases is the care of their own person. These children generally have not been taught to wash their faces and hands and comb their hair, still less to bathe. These matters should be carefully taught until they become habits. Next comes the dressing. Many cannot lace their own shoes and have to be carefully taught to do so. Sometimes the buttoning and unbuttoning of their clothing is beyond them until they have been carefully trained. Along with this, may go such kinds of household work as they can do, such as scrubbing the floors and windows, washing and ironing, facilities for all of which should be provided by the school department. The janitor should have practically nothing to do in this room. The sweeping and cleaning and scrubbing should all be done by the children as it gives them just the training they need. Mending may be included, simple mending of their own clothing or clothing brought from home for the purpose and later on the making of simple garments may be taught.

In connection with this work such use of written or printed words in writing or reading as is natural, may be made and encouragement given

along this line in proportion as the children show ability. A few of them in this way may learn to read and write. Those who cannot learn it this way can never learn it profitably in any way. Gradually in the course of the first three or four years of school these children will differentiate themselves into high-grade imbeciles and morons, the latter again subdivided into low, middle and high grades. When it is finally ascertained that a child has a mentality of eight or another one of ten or another of eleven, their future may be pretty definitely outlined and they must be trained therefor.

When once it is ascertained that these children are feeble-minded, they should of course, if possible, be transferred to an institution for the feeble-minded where their training will be more intensive and uniform and less interrupted than in the public schools and where they will be cared for as long as is necessary. Some of them will need to be cared for throughout their lives, others may probably be "graduated" when they have reached manhood or womanhood. The time is to be determined partly by their level of intelligence and partly by their temperament and the likelihood of their getting into trouble. If they cannot be placed in institutions then their training

in the public schools should go on as outlined. The higher grades, as they grow older and stronger and come nearer to the age for leaving school, may be taught various simple industrial pursuits. What this will be, depends not only upon their mentality but upon the locality in which they live, that is to say, upon what industries are carried on in that community into which these children may fit and do their simple work.

For example, in one city children are taught to be assistants to a cook because there are many bakeries in that city and many of these morons find occupation as helpers in the bakêry. They have been taught cleanliness and taught to handle the various materials used and so are able without too much labor on the part of the employer to adapt themselves to some of these occupations. Much of the work now done in schools under the head of manual training is of no use to these children except as recreation, they can never earn their living by making baskets or doing woodwork, hammock making and other attractive looking occupations. However, as said, there are certain ones of these that may serve as entertainment for them; for example, girls like to make lace, crochet and knit and they may well be taught these things in order to have something to

do in the out-of-work hours, just as the housewife likes to sit down and embroider when the work of the day is done. Such a thing as shoe repairing is justifiable because they can often mend their own shoes or those of the family, but again, it is doubtful if many of them can ever earn a living by shoe mending, especially now that so much of this is done by machinery.

If the school is in a factory town, the teachers may well study the work in these factories and ascertain what opportunity there may be for these high-grade feeble-minded children more or less completely to earn a living in these factories. Moreover, the teacher should be on the lookout for any special interests or capacities that these children may have, and should be governed somewhat by that in the choice of occupational training for them.

Coming back now to those children who are at age or above age and are doing regular school work, they should be given mental tests whenever it is proposed to promote them to an advanced grade. It will thus be ascertained whether they have the mentality for doing the work of that grade. Whenever it is shown that they have not the capacity, they should be transferred to

special work within their capacity, and their development carefully watched.

When it comes to high school it is most important that their mental level be determined, because there are many children who get through grammar school fairly well but have not the mentality for high school work. This fact should be determined and these people allowed to leave school and go into industries rather than be forced on into high school. Again, each year in the high school probably requires a higher level and some will fall out at each step. This brings us to the college. There is a prevalent idea that every child who has the means and gets through the high school, should go to college. The teachers in college have long known that many who enter should never attempt to do college work.

The failure to recognize the fact of mental levels as resulted in much wasted energy both in the discussion of educational problems and in attempts to overcome illiteracy. School men have written volumes on "Why children leave school." The government is at the present time making extensive plans to reduce the illiteracy found in the army. Statements have been issued showing "the money value of education."

In the accompanying table the "wages" and

"school" figures were recently published by the Department of Education, to show the importance of keeping the children in school. The argument being that the facts in the "school" column account for the conditions in the "wages" column. We have added the "intelligence" column. Does it not seem clear that the facts of intelligence account for school and wages?

To appreciate the full force of this "parallel column" it must be understood that each of these sets of figures was compiled and given out by a different department of the federal government. "Wages" comes from the Department of Labor; "school" from the Department of Education; while the figures on intelligence come from the army. In other words, this parallel was not gotten up by any one person to prove a point. They are independent groups of facts, here brought together for the first time because they so strikingly confirm the theme of these lectures.

It is to be hoped that levels of intelligence will be taken into account in future plans and discussions.

The plan recently announced by a few colleges, notably Columbia University, to give mental tests to their entering class is a great step forward. To allow a young man or young woman

WAGES	SCHOOL	INTELLIGENCE
Of 100 wage earners	Of 100 children	Of 1,700,000 soldiers
9% Earn $150-$200	13% Leave in 4th Grade, Age 10	10% in "D —" Group, Mental Age 10
12 " 250- 300	13 " " 5th " " 11	15 " "D" " " " 11
16 " 350- 400	14 " " 6th " " 12	20 " "C —" " " " 12
31 " 450- 600	27 " " 7th & 8th " 13, 14	25 " "C" " " " 13, 14
68 " less than $15 per week	67 Do not finish 8th	70 Are below " " 15
27 " $750-$1000	23 Leave after 8th	16½ in "C +" Group " " 15
3 " 1250	10 Attend H. S.	9 " "B" " " " 16, 17
2 " over 1250	3 Graduate H. S.	4½ " "A" " " " 18, 19
	1.5 College	

to waste a year in college worrying along with work for which he has not the mental capacity, is social inefficiency of a high degree.

Moreover, there are varying levels among those who have the necessary mental level to do college work, some can do it easier and better and faster than others. The ascertainment of this fact will be of profound significance and value to instructors since they may thus know at once what they have to deal with and what to expect. A man who has high ability but is doing poor work may very properly be dealt with for not living up to his capacity. On the other hand, the student who has the lowest degree of mentality that is capable of doing college work and who does his work in a slow manner, should be given the necessary amount of help but should not be worried and dealt with if he is doing the best he can. The mental level would also show which students could safely be conditioned.

It is not, as we understand, proposed to have the mental tests entirely replace other examinations. No matter what the intelligence of a person, he cannot go into a college class in Cicero or Horace if he has never had adequate preliminary training in Latin.

As mental tests are developed and standardized

for the higher intelligences, they should be applied to each college class and for university work as well. Moreover it will undoubtedly be possible eventually not only to give each student a mental rating but to discover by proper tests the special abilities of various students with an idea to guiding them in their choice of work or profession; thus saving an immense waste of energy, and contributing enormously to the sum total of human efficiency.

We come now to our final topic: the social control of the unintelligent and inefficient. That society has a right to protect itself is an axiom which no one will attempt to deny. When individual freedom comes in conflict with social well-being, there is no question as to which should take precedence. In spite of this self-evident fact, we have in the past allowed the idea of individual freedom to encroach heavily upon the domain of social efficiency. There will always be, of course, cases where it will be difficult to draw the line but that the line should be drawn much more closely on the individual freedom than has been done, is evident to all thinking people. We do not give to every man that asks it the freedom to practice medicine, to pilot steamboats, to serve as engineer (either locomotive or stationary).

Nor do we feel that we are interfering with his individual liberty if we deny him the privilege of doing these things after we have examined him and found him incapable. There is no reason why this principle should not be extended indefinitely wherever the conditions indicate a need. Even in the vocations just named, we do not attain to perfect success, because our examinations *do not determine the mental level* of the candidate. Many an accident involving a great loss of life has been due to the actual mental incapacity of some engineer or pilot who has somehow managed to pass the usual tests. Many of the tests only ascertain whether the person is able to perform his duties under ordinary circumstances, when everything runs smoothly. They do not test his ability to meet an emergency and it is in these emergencies that a catastrophe takes place. If we knew the man's mental level, we could often say at once that while he has passed the technical examination, he has not intelligence enough to be safe in any emergency.

On the other hand, many people of ample intelligence fail to pass our examinations because of purely accidental lack of technical knowledge. A matter that could be made up in short order after the individual once assumed the duties. In other

words, we would surely all agree that we would prefer an intelligent man with less technical knowledge than an unintelligent one with all the technical knowledge possible. We often act in accordance with this view; indeed it is about the only way in which an entirely new kind of work can be carried on. Here is something to be done that has never been done before. There are no books giving directions, nor any experiences; there is no way of testing a man's technical ability. What do we do? We pick out an intelligent man and say, "You have sufficient intelligence to learn this and work it out for yourself." If our rating of the man's intelligence is correct, the result is satisfactory.

Why should we not ascertain the grade of intelligence necessary in every essential occupation and then entrust to that work only those people who have the necessary intelligence? This would not be at all difficult to do. It would in some cases require considerable labor, but that is all. For example, how much intelligence does it require to be a motorman on a street car? To ascertain this, it is only necessary to give mental tests to all the motormen and then ascertain from employers which ones are highly successful, which ones moderately successful and which prove to be

failures. It would then be discovered that men of a certain mental level fail, men of another mental level are fairly successful, men of still a third mental level are highly successful and efficient. Now, of course, in each particular case certain other qualities enter besides the intelligence. For instance, a man may be highly intelligent, perfectly capable of being a motorman on a street car and yet he may be of such nervous, excitable temperament that he would get panicky at the first unusual situation. He would be ruled out not because of his intelligence but because of this other peculiarity.

In the army, not all of the A men were chosen for officers because, although they had a high grade of intelligence, it was obvious in many cases that they had not the quality to command. To carry this still further, society not only has a right to protect itself but it seems clear that society has a right to take any action necessary to attain the highest social efficiency. If this is true, why should we not ascertain the mental level of people in various activities and when we find any inefficient, clearly on account of their lack of intelligence or other qualities, why should not society have the right to transfer that individual to some other line of work where he would be more

efficient. This may be a too advanced step to be taken at once but it surely will come to that eventually. Such a procedure would work no hardship to the individual because in the long run it would actually increase his happiness and lengthen his life, for there is nothing more deadening and discouraging than to be compelled to work at something where one is conscious that he is inefficient. Many a person is inefficient because of an uncongenial environment which a better intelligence would prompt him to change. Moreover, this emotional condition has a physical basis which, while sometimes beyond control, is nevertheless in many cases capable of being much modified by a use of sufficient intelligence.

We must return now to consider the problem of the mental defective from the standpoint of social efficiency and social control. Let us assume that under ideal conditions every feeble-minded individual should be cared for in the proper institution or colony and let us assume further that this has been done and that it was done as quickly as the cases could be discovered, that is to say, in childhood and early youth. To do this, would probably require at least three times as many institutions as any State now possesses, a big expense; but what compensation!

First, we would have reduced our crime record by from twenty-five to fifty percent, thereby saving the damage, including the lives of those who are killed by feeble-minded people. We would have saved all court costs, and instead of having these persons in prisons where they practically do nothing, they would be working in a happy community of their peers. Even in those prisons where the prisoners are made to work, these feeble-minded people can do very little because they are not understood and because there is not the right kind of work for them to do. In institutions or colonies for the feeble-minded, they are largely self-supporting under direction. We would have taken from the public schools all those children that are the bane of the teacher in every class. The teacher would thus be able to devote her time and attention to instructing the normal children. A gain that is so enormous as to be difficult to appreciate.

Moreover, your child and mine would not have to sit in school beside an imbecile. Every institution not for the feeble-minded, but where feeble-minded people are now too often found would be relieved of this burden and would be able to do its specific work much more efficiently. Sex immorality and prostitution would be

largely reduced; also the problem of the spread of venereal disease would be materially helped and most important of all, the race of the feeble-minded would be largely cut off, since these people would be kept from propagating their kind. We say the birth of feeble-minded would be *largely* stopped. Some feeble-minded children would continue to be born. We now know that two normal people may have feeble-minded children if each of them has a feeble-minded taint somewhere in the ancestry.

Now what is the program for those who are thus cared for according to the ideal plan? In the institution, these children will be trained to do all those things that are within their mental capacity; and at the same time, correct habits of living will be impressed upon them. Now the feeble-minded more than anybody else are creatures of habit. Once a habit is formed it is never broken. This is because they lack energy, they lack initiative, they lack imagination, they lack ideas which would tend to make them try new things. They are perfectly content to go on day after day in the routine in which they have been brought up. On this account, many of the evils which society suffers from these people when they are brought up in laziness and idleness, would be

eliminated. When they are eighteen or twenty years of age, after having had from five to ten years of this careful and wise treatment, many of them could be sent back to their homes on parole. Careful study of them while they were in the institution will have shown what ones can be thus trusted in their home communities.

Ninety-five percent of those who are thus sent home would give no further trouble, the other five percent would sooner or later have to be sent back to the institution. These persons who are thus on parole would of course be under a constant supervision; where the parents were able to exercise the proper control that would be sufficient. In other cases there would have to be some sort of local committee for the purpose of keeping in touch with these cases. This oversight might perhaps be exercised by the police or if necessary, special parole officers could be appointed. In small places the pastors of the churches might without adding unduly to their day's work, give the necessary oversight. The children thus sent out would give ample room for the others that needed to be taken in.

This is no fanciful theory, there is evidence to prove that it is a possible solution of the problem. Dr. Bernstein of the Rome Custodial Asylum,

has placed out for day's work in the city of Rome a hundred girls. They have all made good but two. Studies have been made both at Waverly, Massachusetts and at Vineland, New Jersey, of those cases who have, for one reason or another, left the institution and although these cases have not been under the supervision that we would plan for, nevertheless the results are amazingly satisfactory. Very few of them have gotten into trouble and the large number of them, thanks to their careful training in the institutions, have been able to work and earn something to help in their own support.

I recently met in the city of Cleveland a boy who had formerly been at Vineland. He is now earning $18.00 a week, is quiet and well behaved and shows no tendency whatever to go wrong. It is thus seen that the problem of the high-grade feeble-minded is a problem of education. Not the kind of education that we are giving to the normal child, but a training to work according to the child's mental capacity.

To sum it all up, here is a large group of inefficient people. This group is increasing rapidly through the natural propagation of hereditary feeble-mindedness. They are not only inefficient themselves but they are causing inefficiency in

society. They are unhappy because they are not understood and consequently mistreated. They are idle because they have not been trained to do anything that is within their capacity. They commit crimes, they spread disease; they cry out from every angle to be cared for. Will society exercise its right of self-protection, its right to develop itself to the highest efficiency and will it take care of these people? It is a straight problem in economy and social well-being. In the past we have thought these people were wicked and willful and were to be reformed by constantly punishing them. We now know that they do as they do because they have not sufficient intelligence to do otherwise.

Civilization is growing more complex every day and making it more difficult for these people to adapt themselves to their environment. Under these conditions it would seem that there is only one thing to be done, that is for society to step in and control the situation.

I have dwelt somewhat at length upon education and social control because to my mind these matters are of vital importance in a democracy, where the keynote must be happiness and contentment. In a military aristocracy education may not be so important, indeed it may be desir-

able to keep the masses in ignorance in order to emphasize their dependence upon their superiors; and where all are under the control of the ruling group, it is not so important perhaps to segregate the mental defectives from the other low levels of intelligence. But in a democracy every man is supposed to do his part. What that part is can only be determined by knowing his mental capacity and in training him to the limit of that capacity.

As Americans we are proud of our claims to freedom and equality and that it is the inalienable right of every one to enjoy life, liberty and the pursuit of happiness. These are simple formulas that make a strong appeal. The actual carrying out of them however, is a difficult matter and only by constant adjustment and readjustment can they be worked out and the ideal goal attained. The greatest liberty or the highest happiness is only attained when each individual is properly adjusted to the rest, and while as we have pointed out, there are many factors concerned in that adjustment we have maintained and tried to demonstrate that the fundamental factor is the mental level, and that a perfect democracy is only to be realized when it is based upon an absolute knowl-

edge of mental levels and the organization of the social body on that basis.

Resumé. In this course we have tried to express our conviction that every human being reaches at some time a level of intelligence beyond which he never goes; that these levels range from the lowest or idiotic, to the highest level of genius. We have indicated without going into great detail that the number of people of relatively low intelligence is vastly greater than is generally appreciated and that this mass of low level intelligence is an enormous menace to democracy unless it is recognized and properly treated. We have tried to show that the social efficiency of a group of human beings depends upon recognizing the mental limitations of each one and of so organizing society that each person has work to do that is within his mental capacity and at the same time calls for all the ability that he possesses.

In our third lecture we have tried to show that the failure to appreciate this fact and control it, has resulted in a vast amount of delinquency, and that such delinquency impairs the efficiency of the total group to an extent little appreciated. We have pointed out that the intelligent group must do the planning and organizing for the mass, that our whole attitude toward lower grades of intelligence must be philanthropic; not the hit

and miss philanthropy with which we are all too familiar but the philanthropy based upon an intelligent understanding of the mental capacity of each individual. And finally we have attempted to show that democracy is not impossible even in a group with a large mass of people of relatively low mentality, provided that there is a sufficiently large group of people of high intelligence to control the situation; and provided further, that that group has the right attitude toward those of less intelligence. That that attitude is best expressed by the one desire to make all people happy; which does not mean, as socialism is too apt to claim, that all people are to be treated alike. Children are not to be made happy by placing them in the same level as adults. Even in a democracy where every person has the right to vote for those who shall rule over him, the masses will vote for the best and most intelligent if they are made to feel that these same intelligent people have the welfare of the masses at heart. The only way to demonstrate that, is for the intelligent to understand the mental levels of the unintelligent, or those of low intelligence, and to so organize the work of the world that every man is doing such work and bearing such responsibility as his mental level warrants.